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Address

WORK OF THE SECTION ON OPHTHALMOLOGY.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON OPHTHALMOLOGY AT THE FIFTY-SEVENTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, BOSTON, JUNE 5-8, 1906.

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To present to you a résumé of the progress of ophthalmology during the past year, if such résumé should contemplate even a brief review of the numerous articles written, would occupy far more time than should properly be allotted to an introductory address. The omission of this formal duty by some of my predecessors has, I am sure, had the approval of the Section. An excellent review of this character by Dr. John Green, Jr., may be found in the *Interstate Medical Journal* for January, 1906, and a still more comprehensive analysis of the work of the year may be found in the excellent "Ophthalmic Year Book," edited by two of our most active workers, Drs. Jackson and de Schweinitz.

A pleasing feature of our last meeting was the presence with us of Professor Hirschberg, of Berlin, who gave an interesting address and who participated in the discussions of the scientific work of the Section. The custom inaugurated a few years ago by Dr. Allport, and since followed by others of my predecessors, of inviting a distinguished foreigner to attend the meeting of our Section and to deliver an address on some special topic is one well worthy to be followed by subsequent officers of the Section.

I regret exceedingly that I do not have the pleasure of introducing to you to-day one whom many of us know and whom we all honor for his scholarly work in ophthalmology. An invitation was extended some months ago to Prof. Carl Hess, of Würzburg, to be present as the guest of the Section and a formal acceptance was received from him. He was looking forward with pleasure to his visit to America, and had even written the address which he expected to deliver before us, when later, much to his regret and ours, he was forced by circumstances which he could not control to cancel his engagement and to postpone his visit indefinitely. It is to be hoped that we may be favored by his presence at some future time. Owing to the late date at which we received his declination it was not possible to secure another in his stead.

It is with sincere regret that I announce the death of one of our prominent workers, Swan M. Burnett, of Washington, D. C., which occurred suddenly on January 18 of the present year.

As late as December 29, in a letter to me, he accepted an appointment for committee work and wrote: "I hope to pull along far enough on the road to 'Wellville' to be able to go to Boston in June and to prepare a paper for you." He was interested in this Section from its inception and was its secretary in 1880-81. His work in our specialty is so well known to you all that it seems scarcely necessary to mention it here. Scholarly, earnest, devoted to his work, he was always ready by voice or pen to advance the science that he loved so well. In his death, ophthalmology has suffered a great loss.

The lack of time for a full discussion of the many interesting papers read before the Section has been a serious detriment in the past, and in order that this detriment may be removed we come before you this year with a new plan, that of having the papers published in advance of the meeting and in the hands of the members of the Section, so that each member may be fully ready for discussion, if he so desire, and that adequate time may be given for full consideration of special papers that may come before us. This plan has been considered for some years by others, and an effort was made by our present secretary to introduce it two years ago, but it failed owing to lack of co-operation in the office of THE JOURNAL. Its successful introduction this year is due to the untiring efforts of our energetic secretary and to the hearty co-operation of the editor of THE JOURNAL as well as of all those whose names appear on the program. It is possible that some of you may not cordially accept this plan. There is always room for honest difference of opinion, but we believe that it is worthy of trial and, with such modifications as your judgment will suggest, is worthy of adoption for subsequent meetings.

The importance of the suggestion made in their inaugural addresses by at least two presidents of the American Medical Association that the secretaries of sections should be, in a measure, permanent is well shown by the good work of our Section during the past three years. The policy of re-electing the secretary for a term of years is certainly a good one for the Section, though rather trying to the member who accepts the arduous duties of the office. Such a one should, at least, be relieved of all expense in connection with his work as secretary. The growing interest in the Section, the valuable volume of Transactions issued to members, together with the increased cost of mailing the copy of papers printed in advance of the meeting, would be grounds for suggesting an increase of assessment to at least $2.00 a member in order that the expenses may be equitably borne by the whole Section. Especially will this be advisable if the plan adopted for this year should be continued.

There are many reasons why this Section should be the true representative Ophthalmological Society of the United States. As the American Medical Association with its new constitution aims to represent the medical profession of the whole country, so this, one of the oldest sections of the general association, should represent the organized ophthalmologic profession of the whole country. It is the only ophthalmological society from

which no reputable oculist can be debarred by the vote of personal prejudice, or his entrance thereto be delayed by the slow-working process of membership committees. If his standing in his community is such as to admit him to membership in his local society, he is thereby entitled to membership in the American Medical Association and, if he so elects, to membership in this Section. Representing thus the entire profession of the country, we have in our ranks the very best workers that are to be found in our specialty; because we may have all of those who are entitled to membership in the most exclusive association of oculists, as well as all reputable younger workers whose reputations as scientific investigators are still to be established.

For the very reason that we represent in this peculiar manner the entire profession, the utterances of this Section, when unanimous, or nearly so, should have greater weight than the expression of any other ophthalmological society in the country, and the time has surely arrived when this Section, as such, should give definite expression of opinion and stamp with its approval certain features of our art on which the majority of us can agree. By no means would we imply that the last word has been said on any procedure or theory in ophthalmology, nor should there be any limit whatever to individual investigation or progress. More than twenty years ago a friend of mine who has since become eminent in his own specialty said to me: "Ophthalmology is finished. You will find nothing new in it." If he could carefully survey the field at present, he might readily conclude that it is not finished yet.

It is possible that there may be some more words to be said on the ocular muscles, their function, their defects, and their treatment before we shall arrive at definite conclusions to which we may all subscribe. One of the masters in this particular field who has spent much time in investigation and has written largely in expression of his views recently said at the close of a most interesting address: "I feel as if I were only on the threshold of this study."

Even cataract operation may be changed. The excellent results as shown in the recent interesting paper of Major Smith, of India, may lead us to think that a going back to old methods may really be a going forward in progress. The subject of bacteriology, which we hope to discuss quite thoroughly at this meeting in the symposium presented in our program, will not be ended this year, nor the management of ocular tumors, nor the use of electricity, nor others of the interesting questions that will be brought to your attention in our present program. There will still remain fields for investigation by the young ophthalmologist and plenty of opportunity for him to help settle the questions that have perplexed the elders. Refraction, as we all know, occupies a large part of the time of every ophthalmologist, and yet very little is said about it at our various meetings. Possibly many feel that so much has been said in the past that this is one of the points on which we are all agreed. I fear, however, that there is considerable divergence of opinion, and I wonder that so little attention is paid in our meetings to the various phases of this important subject.

There are some matters, however, about which we should be ready to give definite expression. For instance, the amount of instruction in ophthalmology that should be given in our medical colleges. This expression should be either by the appointment of a committee to formulate a course of instruction or by stamping with our approval the work already done by leaders in this line. The ignorance which treats a glaucoma by instillation of atropia or regards this or iritis as merely a form of neuralgia should not be tolerated in coming medical graduates. Only two years ago a resident physician, standing by me at the performance of a cataract operation, asked what the black stuff was that I removed from the eye when the iridectomy was made. He had spent four years in an excellent medical school, and yet had never seen a cataract operation and did not know the difference between the cornea and iris, and he was a good resident, too, and better qualified to enter on practice than many others.

The subject of ventilation of school buildings, in its bearing on health and eyesight, as so ably presented by my immediate predecessor, as well as the general hygiene of school life in its bearing on eyesight, might well receive our consideration and definite approval.

Especially should we stamp with our disapproval certain pernicious forms of kindergarten work which demand excessive use of the eyes at close work at an age when eyes should not be subjected to such strain.

Above all, may we not hope at an early date for a still more definite expression from the Section on the subject of preventive blindness? Much excellent work has been done in this direction, and I think in the general principles involved we are fairly unanimous. I trust you will be ready to vote favorably on the resolutions that will be presented later, prepared by Dr. Park Lewis, of Buffalo, asking for the appointment of a committee by the Association to work out the details of a plan that may give us definite and uniform legislation throughout the country, and definite instruction to the general profession and laity, and thus supplement the excellent work already done by Massachusetts and a number of other states of our Union. These are a few of the questions that would seem to me to be worthy of your notice.

I welcome you most heartily to this twenty-seventh annual session of the Section on Ophthalmology. We come before you with a full program of interesting and varied papers, and I cordially invite you all to participate in a full discussion of the same.

Before entering on our stated program, I want to express my sincere appreciation of the honor you have conferred on me in electing me chairman of this flourishing Section and to thank you most heartily for the same.

Original Articles

A MORE UNIFORM STANDARD FOR THE ILLUMINATION OF VISUAL TEST-TYPES.*

CHARLES H. WILLIAMS, M.D.
BOSTON.

At our last session in Portland, Oregon, the illumination of some test-types which I showed was criticised, and justly so, on account of being too intense. If the light reflected from the test-type card is too bright the retina soon becomes fatigued, there is more irradiation, and the results obtained are less reliable than where a weaker illumination is used; on the other hand, if the light is too weak, we do not get a proper measure of the acuteness of vision under the conditions of ordinary use. We need some standard which will come between

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

these two extremes, which will be constant, so that the acuteness of vision of any individual to-day can be properly compared with his record of any previous time, and which will allow the reported records of one examiner to be compared with those of another.

It is easy to measure with great accuracy small differences in heat, or in the amount of an electric current, but with light these measurements can not be made with anything like the same accuracy, and for the purpose of measuring the amount of light reflected from a card of test-types, and of noting the point where the light reflected from the card becomes so much reduced in comparison to that reflected from the surface of the letters that the letters can no longer be read, it has been necessary to devise two special forms of photometer, which will be explained later.

STANDARD ILLUMINATION.

For practical purposes it will be best to state first the conclusions which have been reached after many trials and then to describe some of the tests. The most satisfactory results have been obtained by hanging the card of test-types in a cabinet painted a dull black, the opening being three feet wide by four feet high. On each side of this rectangular opening, right and left, is arranged a vertical column of small incandescent lamps of 5 candle power each, eight on each side, made to burn four in series on a current of 110 volts. These lamps are arranged at equal intervals, the highest and lowest being as near the top and bottom of the cabinet as possible, and are so placed that the lamps of one side come opposite the intervals between the lamps of the opposite side, thus making a more even distribution of the light. This vertical column of eight lamps on each side is protected by a blackened tin screen so that no light will pass direct from them to the observer, but so that the full amount of light will be thrown on the test card. The lights are one foot in front of the plane of the test-types, and about fourteen inches from the nearest edge of the card, and "frosted" bulbs are used.

With the lights arranged in this way, an even and constant illumination will be obtained over the whole surface of the card, the light will not be too intense, especially if the test-types are printed on paper of a light brownish tint, or, which is the same thing, if the paper has become darkened with age.

The above arrangement supposes that the office is supplied with an electric current, which is almost a necessity at the present day, but in many cases this is not available, and we need some measure of the amount of light reflected from a series of test-types at the ordinary distance of five meters, and some means of comparing this light with the amount reflected from such a standard as above described.

THE SIMPLEX PHOTOMETER.

A "simplex" photometer, which I devised last summer for measuring the relative brightness of signal lights at a distance of half a mile or more, seems to answer also for the comparison of the light reflected from different test cards, or from the same card under varying illumination.

This photometer consists of two developed glass negatives cut in strips about six inches long by three-quarters of an inch wide, placed face to face and mounted in a metal case. The film on each negative increases in density in a geometrical ratio from the clear end toward the dense end. These negatives are made at the Observatory of Harvard College with the same apparatus which is used for making photometric films for astronomical work and they give a very even and regular gradation.

To measure the brightness of a light, the photometer is held in front of the eye so that the light to be measured is seen through the clear end of the photometer film, the glass is then slowly moved so as to bring the denser portions of the film in line with the light until a point is found where the light is just extinguished by the absorption of the film. The amount of light cut off by the film at this point measures the intensity of the light tested, and can be read off on a scale attached to the glass photometric negative. It has been found most convenient to mount the negative in a metal case

Figure 1 shows the instrument closed, as it is carried in the pocket.

Figure 2 shows the instrument open ready for use. The cap is removed, the wire at the end of the cap is slipped over the end of the instrument to make a shield for the observer's eye.

shaped like a razor case, a sighting hole is punched in both sides of the case through which the light to be tested is observed, and directly below this is another hole in one side of the case through which the scale of the instrument can be read (Fig. 2).

Figure 3 shows the position in which the photometer is held when in use, resting firmly on the nose with the hole in the case before the eye.

The accurate marking of the scale on these instruments was rather difficult. The developed negatives

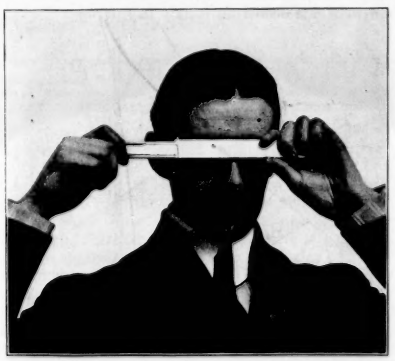

Figure 3 shows the position in which the photometer is held when in use, resting firmly on the nose, with the hole in the case before the eye.

giving a gradually increasing density of film were made with the greatest care, so far as selection of plates, time of exposure, developer, etc., were concerned; yet with the greatest attention to details the films could not all come out alike, and, although there was very little trou-

ble as to the gradually increasing density of the film, yet some films would be denser throughout than others, and a certain point, say at 10 cm. from the clear end of the film, would not, in all cases, cut off the same amount of light. In order to have a uniform scale for all the instruments, it was found necessary to have a series of standard shade glasses prepared. Each photometer was then compared with this set of glasses, and the scale of each instrument was marked from the result of this comparison. These standard shade glasses were made under the direction of Mr. E. S. King, of the Observatory staff, who has been very helpful

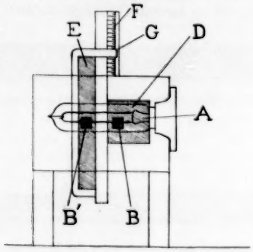

Fig. 4.—Front plan.

throughout these investigations, and a series of standard shade glasses was finally obtained which did not vary more than 1/10 of a stellar magnitude from the calculated amount in the quantity of light they cut off. This series of glasses consisted of six pieces which cut off an amount of light equal to 1, 2, 3, 4, 5 and 10 stellar magnitudes, respectively, and by comparing each photometer with this series of glasses, used either singly or in combination, a series of points was established where the instrument cut off an amount of light equal to 1, 2, 3, etc., stellar magnitudes up to 15, and the scales were established uniformly in this way.

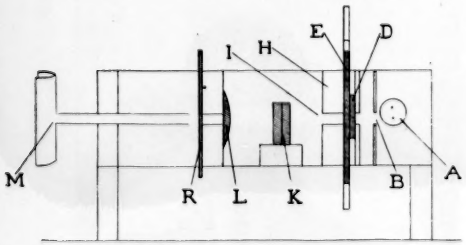

Fig. 5.—Side plan.

The amount of light to be measured, especially in the tests of distant signal lights, was in many cases so much less than a candle power that a scale based on the unit of a stellar magnitude was adopted as being the best. A scale of stellar magnitudes may be stated as a scale of brightness proceeding in geometrical ratio, each magnitude being about 2.5 times as bright as the magnitude next fainter, a difference of five magnitudes being equal to a difference of brightness of the lights in the ratio of 1 to 100. The pole star has a brightness of about 2.12 magnitudes. The ratio of 1 to 2.5 as representing one stellar magnitude has been determined by astronomers by taking the lists of stars which the older astronomers had constructed as giving an estimate of their brightness, as of the first, second, etc., magnitude, and on careful remeasurement finding that a difference of one magnitude between one star and another corresponded on the average to the ratio of 1 to 2.5.

In order to make an accurate comparison of the photometric films with the standard shade glasses, I made a new photometer. The problem was to have an intense light, equal to about 17 stellar magnitudes, placed before each of two openings so that each would receive an equal amount of light; behind one of these openings was the standard shade glass, behind the other opening was the photometer film to be measured, and, the light having passed through them, was to be so directed that when seen in the field of the eyepiece part of the field would be lighted by the rays which came through the film, and the other part by the rays which came through the standard shade glass, these two areas just touching along one edge so that their brightness could be compared. By moving the film, a point is quickly found where the light of the two areas is equal, and this shows the point where the film absorbs the same amount of light as the standard glass with which it is being compared.

The comparison photometer is arranged thus: In a box (Figs. 4 and 5) about 16 inches long, 4.5 high and 6.5 wide, at one end is a candelabra incandescent lamp

Figure 6.

ARRANGEMENT OF COMPARISON PHOTOMETER.

with a long straight film, A, which gives an intense and equal light for each of the openings B and B' in a metal screen, the standard glass D being placed behind B and the photometer film E behind the opening B'. The photometer film E was held in a movable frame so that it could be easily moved up and down vertically to bring any part of the film behind the opening, and a scale F was fixed to the stationary part of the frame so that a pointer G on the movable part would give a reading showing the distance of the point on the film behind the opening B' from the clear upper end of the film. A partition H in the box cut off any stray light and had an opening I in line with the openings B and B' in the screen. A prism of twenty degrees K was placed with its apex vertical and 4.25 inches from the openings B and B' in a line midway between them, and the prism was arranged to move horizontally on the bottom of the box so as to be capable of such adjustment as would bring the edge of the lighted area from one of the openings B in juxtaposition to the other B' when seen in the eyepiece M. At 2.5 inches from the prism was a convex cylindrical lens L of ten diopters with the axis horizontal, and in the end of the box a tube with a small hole, 1/10 inch in diameter as an eyepiece at the end M, through which the light from the two openings could be seen and compared. The result of this arrangement was to give at the eyepiece M the picture shown

in Figure 6. Two light areas O and P are seen, the light of O coming through the opening B′ and the movable photometric film E, the light of P coming from the opening B through the standard shade glass D. If the film is lowered the field O will appear lighter than P, and if the film is raised the field O will become darker than P, and a point can quickly be found where, by moving the film, these two lighted areas appear to be of the same brightness, and at this point the scale F is read, giving the distance from the end of the film to the point where the density of the film behind the opening B is just equal to that of the standard shade glass, placed behind the opening B.

In order to act as a regulator and keep the intensity of the light about the same, and at a point where the retina is more sensitive, no matter whether the film E is being compared with lighter shades, of 1 or 2 magnitudes, or with a denser shade of 12 or 13 magnitudes, a second film R covering the whole field as seen in the eyepiece M, is placed behind the cylindrical lens L, and is arranged to move vertically. When the lighter shades are being tested the film R is raised so as to cut off more light, and when the darker shades are tested the film R is lowered so as to cut off less light.

Five readings were taken with the film and shade glass in the first position, then the frame holding the standard glass and film was reversed and another set of five readings was taken in the reversed position. In this way any inequalities in the instrument, such as the light absorbed by the prism, any inequalities in the light from the two openings, etc., were neutralized. The mean of these ten readings was taken to fix the desired points on the paper scale pasted on the glass of the photometric film.

The result of careful measurement of 62 of these photometers has shown that these points when laid off on co-ordinate paper form a practically straight line and, instead of measuring a point on the film for each stellar magnitude from 1 to 15, it is sufficient to measure the position of three points, say 2, 7 and 12 magnitudes, a straight line is then drawn through these three points when laid off, using the stellar magnitudes for ordinates, and the distance from the end of the photometer to the point where the lights are equal for the abscissas, and this will give a line from which the intervening points of the scale can be found with great accuracy.

TESTS AND RESULTS.

With a "simplex" photometer constructed as above, if we look at the letters on the test-types which represent a vision of 5/50 or 6/60, through the opening in the photometer case, and gradually withdraw the film, we shall find at from 9 to 10 on the scale the form of these largest letters on the test-types has become indistinguishable; in other words, by reducing the light reflected from the test-type card by an amount equal to about ten stellar magnitudes we just cause the largest letters to disappear when the test-types are illuminated by the standard light mentioned at the beginning of this paper. If we find that the largest letters are extinguished before we reach the ten-magnitude point on the photometer, it shows that the illumination of the test-types is more feeble than the standard, but if the photometer scale gives more than ten magnitudes it shows that the illumination is too bright, and by how much.

With the above standard of illumination if we test the point where the line of letters representing average normal vision of 5/5 or 6/6 disappears, we shall find that this corresponds to about 4 or 5 magnitudes on the photometer scale. This would seem to indicate that if we require a certain intensity of light, viz., the standard amount reduced by ten magnitudes, to read the largest letters, V. = 1/10 or 5/50, we require one hundred times as much, or the standard reduced by only five magnitudes, to read the smallest letters, V. = 1 or 5/5. This proportion also seems to hold good for other amounts of acuteness of vision. The distance being, as before, at five meters, and the illumination of standard brightness, the photometer readings for one observer showed normal vision, V. = 1 at 4 magnitudes, V. = 0.5 at 6.5 magnitudes, V. = 0.25 at 7.75 magnitudes. Another observer gave 5, 7 and 8 magnitudes, respectively.

If we reduce the amount of illumination by introducing a given amount of resistance into the circuit of our lamps, say 10 and 20 ohms, we find that for the largest letters, V. = 0.1, or 5/50, we get the results as given in Table 1.

TABLE 1.

	Full Current.	10 ohms.	20 ohms.	
Observer A...	10.0 mag.	8.8 mag.	8.0 mag.	Right eye.
	10.0 mag.	9.0 mag.	8.0 mag.	Left eye.
Observer B...	9.5 mag.	8.25 mag.	7.25 mag.	Right eye.
	9.75 mag.	8.5 mag.	7.5 mag.	Left eye.
Observer C.....	10.0 mag.	9.0 mag.	8.0 mag.	Both eyes.

This seems to show that as the strength of the current in these lamps is reduced there is a falling off in the amount of light reflected from the test-type card equal to about one magnitude for each 10 ohms. That is to say, for these resistances the reflected light is reduced two and one-half times for each step, and, as the ratio of the intensity of the light increases in geometrical ratio, we find that with the full current the light reflected from our test-type card is two and one-half times as bright as when a resistance of 10 ohms is placed in the circuit and is six and three-tenths times as bright as when a resistance of 20 ohms is placed in the circuit.

The differences in magnitudes and the brightness of the lights are shown in Table 2.

TABLE 2.

Difference in magnitude.....	0.	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Ratio of brightness.....	1.	1.6	2.5	4.0	6.3	10.0	16.0	25.0	40.0	63.0	100.0

According to this table, if we examine two lights with the photometer and find that one light is just cut off at 3 on the scale, and the other at 5, it shows that there is a difference between these lights of two magnitudes in their intrinsic brightness, and that one light is 6.3 times as bright as the other. If we find that one light cuts off at 5 and the other at 9 on the scale, there is a difference of four magnitudes, and one light is 40 times as bright as the other.

DISCUSSION.

DR. O. F. WADSWORTH, Boston, said that he had tested Dr. Williams' arrangement in comparison with other methods. It seemed to him that this illumination is practically as good as a good North light, but there is, particularly if a white background is used, a little too much intensity. Even the yellow tint that he has given these cards might be improved on. There is no question that on very dark days one can not satisfactorily use daylight, no matter how good it may be under ordinary circumstances, and then artificial light must be employed. Within certain limits, Dr. Wadsworth thinks, there is no practical difference in the amount of vision, but there is no question that a standard illumination which every one is to use must be secured by artificial light. Dr. Wadsworth

thought the photometer very simple, very easily used, very accurate and very practical. With a standard determination of light we must have also a standard test type. These types of Dr. Williams are uniform. All the letters are to be made out with about the same ease. There is the disadvantage that there are comparatively few letters that can be used and the patient can readily become familiar with the letters. We gain an advantage in one way and lose it in another.

DR. NELSON M. BLACK, Milwaukee, Wis., said that one of the main objects of the Section on Ophthalmology of the American Medical Association should be to standardize the various methods and apparatus used in testing the eyes. This has been done along some lines. We understand when a case is reported as having V. equals 6/vi or 20/20 that it represents the visual acuity measured by the Snellen standard test types at a standard distance. Dr. Black said that he had devised, and for the past five years had used, a luminous test-type cabinet (*Ophth. Record*, April, 1904), in which the letters are engraved on porcelain and transillumined with three incandescent lamps of eight candlepower each. This gives perfect and constant illumination and is less tiring to the retina than reflected light. Dr. Black remarked that Dr. Williams opened his paper with the statement that the illumination of his charts was justly criticised at Portland last year as being too intense. He asked, why shouldn't Dr. Williams be in error again? He thought that the first need is to adopt a definite standard of illumination for charts expressed in units of candlepower or some such definite standard. Then by the use of Dr. Williams' neat little phorometer one can see that the adopted standard is maintained.

DR. MYLES STANDISH, Boston, thought that Dr. Williams' method is radically wrong. To put a light card in a black box and have a patient look at it for the length of time necessary for an examination is wrong physiologically. To look at this card very long will tire sensitive eyes. In order to use the eyes physiologically the light must be arranged physiologically, with an even illumination. If one goes into a dark chamber and bores a hole through the shutter into the broad light and looks at it, no matter how strong the eyes are, one will have to relieve them by turning the head. The amount of fatigue that comes from looking at letters on a light background when the eyes are adjusted to a dark area is great. If the walls were constructed of some material that would not make a brilliant contrast the ability of a patient to read 20/20 after looking at it for some time would be improved. I have tried some experiments in this direction and am sure this is a just criticism. The excellent photometer I hope every one will try. It is a most beautiful little instrument.

DR. H. V. WÜRDEMANN, Milwaukee, agreed that there is a necessity for a uniform illumination for test types. Many ophthalmologists use charts many years of age, dark-brown in color and the black of the letters hardly distinguishable in the rows of small type. Such charts can not get the full visual acuity of the eye. A chart such as Dr. Williams has presented may bring out a good visual acuity, but after looking at it for a few minutes secondary images of the chart appear on looking up at the ceiling, showing retinal fatigue, due to too great a contrast between the background and the chart. This also occurred in using the Nelson M. Black charts, which are a modification of the Moorfield charts. Therefore the background of Dr. Würdemann's room, which was painted black, had to be changed to a dark gray. With a modification of a gray background he thought the charts quite as good as the Nelson M. Black charts and much better than others.

DR. LUCIEN HOWE, Buffalo, suggested that there was confusion of two things: one, the illumination, and, quite a different thing, the letters. Dr. Howe called attention to the fact that twenty years ago he discussed this subject, referring to the Crooks radiometer as a very good optometer, the little thing seen revolving in the opticians' windows. It is a very excellent optometer and as a rough method will still find its use, though it is not to be compared with the very excellent method of Dr. Williams. Dr. Howe thought that this has a better scientific basis and he expects to use it a great deal. As to the letters, Dr. Howe said that Dr. Williams has been working on this subject for a number of years. Very few have given such attention to the subject as he has, and so Dr. Howe felt inclined to accept his views in the matter.

DR. CHARLES H. WILLIAMS, Boston, explained that this amount of light on the card is equal to a good fair summer day's light, diffused daylight, and is equal to ten magnitudes of a photometer. That is the standard. In regard to Dr. Würdemann's criticism as to the secondary images, Dr. Williams said that one can not get any letters that are visible that will not do that after the eyes are fixed constantly on one of the letters. Dr. Williams said that as to the criticism made by Dr. Standish of the background, that would be very easily remedied by simply painting the background another color, and he sees no objection to doing that.

A NEW SUPPLEMENTARY TEST FOR COLOR VISION.*

NELSON MILES BLACK, M.D.
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The dissatisfaction expressed by those who are required to undergo examinations for color vision is general and in railway service it even extends to the officials. This has created a demand for some test supplementary to the Holmgren wool test which is universally used.

Fig. 1.—Dr. Charles H. Williams' lantern for testing color vision.

The fact that, in practice, railway men and pilots are dependent at night on light transmitted through colored glass has caused an endeavor to devise a test which shall, as nearly as possible, approximate the actual conditions; hence the lanterns. Many are in general use on a number of our largest railway systems. Dr. Charles H. Williams' lantern is probably the best in this country (Fig. 1).

It is conceded that the worsted test of Holmgren will not detect all kinds of color defects, but it must be also granted that no other known test will, and that the Holmgren test is equal, if not superior, to any yet de-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.
* The semaphore lamps used in railway service being the source of illumination.

vised.[1] "An exact test can only be made by the spectroscope by determining the limits of the spectrum and the places of the neutral lines." This, however, is not practical for use in examining railway employés.

The value of the Holmgren test lies in its requirement of a comparison of colors. This is exactly what must be done in practical work; an engineman must draw comparisons between lights of different colors at greater or less distances, with their intensity reduced by atmospheric conditions, by the interference of smoke or steam or by poorly trimmed lamps and dirty lenses and roundels; consequently to meet the demands a supplementary test must conform to several principles which Prof. E. W. Scripture[2] (director of the psychological laboratory of Yale) outlined in his address on "Color Blindness and Its Tests" before the New York Railroad Club:

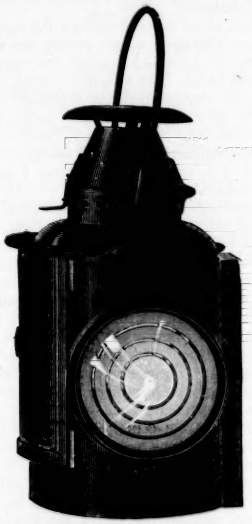

Fig. 2.—Adams, Westlake & Co.'s non-sweating ventilation semaphore lamp.

1. The test must "fit exactly the conditions found in practice."
2. "The person tested should be required to name the objects, for that is what he does inaudibly when he is at work."
3. "The objects for testing should resemble the objects in actual use."
4. "A comparison of colors must be required."

Two more principles should be added and emphasized:

5. The test must give the impression of a signal seen at a distance.
6. The test must be such as may be conducted indoors.

The various lanterns in use fulfill the above requirements to a greater or less degree, but fail in many particulars. "To fit exactly the conditions found in practice," which really includes the fifth principle, "a signal light must be recognized by the engineman at sufficient distance in which to control his train." Mr. R. Quayle, superintendent of motive power of the Chicago & Northwestern Railway, kindly furnishes the following data, which are the result of some recent experiments in controling fast trains: "With the ordinary brake, 70 pounds train-line pressure, a six-car train running 70 miles an hour can be stopped inside of 2,000 feet, approximately 1,900 feet, and when the high-speed brake, 110 pounds pressure, is used on the same train running at the same speed the train can be stopped in 1,450 feet.[3] It will be seen that a signal must be read at not much less than one-half mile (2,640 feet), as a few seconds are necessary for the engineman to shut off his steam and apply his air, and in each one of these seconds a train traveling 70 miles an hour is covering 88 feet."

The suggestion of distance is attempted in the various lanterns by reducing the size of the opening transmitting the light, but this does not by any means meet "the conditions found in practice," as the intensity of the illumination through the small opening is the same as through the large, the source being identical; the only difference is the area of illumination. When the opening is small there are a great many radiating lines of light which give the appearance of a larger opening than really exists.

On account of the distance remaining the same with the worsted and lantern tests, there is a certain class of color defectives and *a class most to be feared* that the Holmgren test and any lantern test so far devised will not detect. These are known as chromic myopes.[2] [4] Up to a certain distance their color vision is normal; beyond they can only determine that one color is darker or lighter than another. Such cases the Holmgren worsted test will not detect, nor will the lantern, even with the small opening to simulate distance, unless they are removed beyond the far point for such individual's color sense. Dr. Charles A. Oliver[4] has called especial attention to this fault in the tests now in vogue. The effect

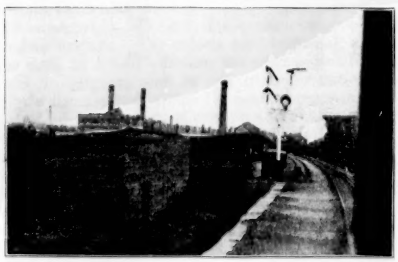

Fig. 3.—Combination disc and semaphore block.

1. Van Marle, F. C.: (doctorate thesis) "The Practical Value of Some Method of Examining Color Blindness." Abstract in Ophthalmology, April, 1905.
2. Scripture, Prof. E. W.: "Color Blindness and Its Tests." Transactions, New York Railroad Club, November, 1899.
3. Black, Nelson M.: "Vision of Enginemen and Firemen in Railway Service. Some Factors Affecting Same." Official Proceedings Western Railway Club, November, 1904; also, "The Environment and Visual Requirements of Railway Enginemen and Firemen." Transaction of Section on Ophthalmology, A. M. A., 1904, and THE JOURNAL A. M. A., Feb. 18, 1905.
4. Wilson, George: "Researches on Color Blindness"; also Oliver, Charles A.: "A Case Illustrating the Inadequacies of the Present Methods for Recognition of Distant Color Signals." Annals of Ophthalmology, April, 1904; also Frank, M.: "Normal and Subnormal Color Perception," Ophthalmic Record, August, 1904; also Eldridge-Green: "Color Blindness"; also Jennings, J. Ellis; "Color Vision and Color Blindness."

on a signal light from atmospheric conditions, smoke, and steam is simulated by using smoke glass of various shades for lessening the intensity, ground glass to represent fog or mist and ribbed glass to simulate rain. These produce the desired effects very well.

"The person tested should be required to name the objects"; it is unnecessary in the test for him to name the color. If the indication is recognized, that is sufficient; for instance, "stop" for red, "clear" for white or green as the case may be and "caution" for green or yellow depending on meaning of colors used. The

Fig. 4.—Diagram of first formula.

Fig. 5.—Diagram of second formula.

ignorance of color nomenclature is well known and has many times been mistaken by an inexperienced examiner for color defect.[5]

"The objects for testing should resemble the objects in actual use." The lanterns do, to a certain extent, but many of those examined are suspicious and imagine there is some trick about the lanterns.

"A comparison of colors must be required." Professor Scripture[2] calls especial attention to this important factor in the paper above referred to and suggests: "Three colors at a time is a number agreeable to the subject. It is a fact well established by experimental psychology that under ordinary circumstances the mind can not attend to more than five objects at a time; the number three is well within the limit."

Professor Scripture's[2] "color sense tester" carries out this idea of comparison. None of the lanterns I am familiar with do. One or, at the most, two lights are exhibited simultaneously. This does not carry out the fourth principle, but is a fault easily remedied. The color sense tester is not constructed to suggest the impression of distance.

In the test about to be described the optical laws are brought into operation which reduce the apparent size of an object when looking through the wrong end of an opera or field glass. The idea of utilizing this as a supplement to the worsted test was suggested while making comparative range tests of various makes of roundels.[6] This was done with the so-called "reducing lens test" used by Dr. William Churchill[7] of the Corning Glass Works, and it is through his courtesy I am enabled to adapt it for a color test.

The apparatus consists of a brass tube with a dead black lining, about 150 cm. long and 4 cm. in diameter, mounting a combination of biconcave lenses. One end is fitted with a hood similar to that used on the ordinary stereoscope, tapered to size of tube. The tube should be mounted in a screen to prevent the person being examined from seeing the source of illumination. The illumination consists of three Adams, Westlake & Co.'s non-sweating ventilation, standard semaphore lamps (Fig. 2). These are placed 400 cm. from the lens farthest from the eye-piece in the tube and form a right angle triangle, whose base is 225.8 cm. and one side 198.12 cm. from center to center of lenses in the lamps. This conforms to the arrangement of signals on one post in practice according to Mr. L. R. Clausen, signal engineer C., M. & St. Paul R. R., and Mr. J. A. Peabody, signal engineer C. & N. W. R. R. (Fig. 3).

The lenses used in the lamps are the latest pattern corrugated semaphore lens manufactured by the Corning Glass Company. This lens collects the divergent rays into a nearly parallel beam; it is 5¾ inches in diameter and has a 3½-inch focus. The fronts of the lamps are fitted with cells very much like those in a trial frame into which the colored glass or roundels used in service may be placed. The colors used in railway service are red, green, white and yellow, but in the test these are used in darker and lighter shades to determine if the candidate can discriminate between different shades of a color.

An attempt to produce the effect of fog, mist, smoke, steam, rain and lowered intensity, due to different atmospheric conditions, is made by interposing ground glass, yellow glass and different shades of smoke glass which produce the desired effect.

The apparent reduction secured may be deduced from the following formula:[8]

$$d' = d + \frac{e\,(p)}{f}$$

d = the real distance from the light.
d' = the imaginary distance from the light to the eye.
e = distance from the lens to the eye.
p = distance from the lens to the light.
f = focal distance of the lens.
The maximum reducing effect would be obtained if e = p.

As every lens reduces the intensity of a beam of light

5. Dibble, L.: "Color Blindness vs. Color Ignorance." Railway Surg., vol. x, 1903-4.

6. Black, Nelson M.: "Report of Comparative Tests of Roundels from an Ophthalmologist's Standpoint." Proceedings of the Railway Signal Association, vol. vii, November, 1904.

7. Churchill, Wm.: "The Roundel Problem." Proceedings of the Railway Signal Association, vol. viii, November, 1905.

8. Palaz: "Industrial Photometry."

10 per cent. by reflection, and every reflection in a mirror reduces the intensity 15 per cent., allowance must be made for the loss by the following formula:

$$d^1 = 105.4 \text{ per cent. } d + \frac{e\,(p)}{f}$$

When a second lens (Fig. 5) is used, it is necessary to calculate the distance (p_1^1) from the lens to the apparent position of the object or light behind it; this is obtained from the formula:

$$p_1^1 = \frac{p^1(f)}{p^1+f}$$

Then p^{11} of the second lens becomes p^1 of first lens + e^1 of first lens and d^{11} becomes ($p_1^1 + e^1$) + e^{11} as indicated in the calculation following:

To ascertain the effect produced by two lenses get the apparent distance given by one, then multiply by factor $\frac{d\ 11}{d\ 11}$ for second lenses as indicated in the calculation.

The following example will illustrate using two — 20 D. lenses, with object 400 cm. from first lens, the lenses 75 cm. from each other and the eye 75 cm. from the second lens. The formula becomes (Fig. 5):

Lens 1. $d_1^1 = p^1 + e^1 + \frac{e^1 p^{11}}{f}$

$d_1^1 = (400 + 75 + \frac{75(400)}{5}) \ 105.4\%$

$d_1^1 = 475 + 15 \times (400)$

$(6475)\ 105.4\% = 6824.65$ cm.

Lens 2. $p^{11} = p_1^1 + e^1$ $\qquad p_1^1 = \frac{p^1(f)}{p^1+f}$

$p_1^1 = \frac{400(5)}{400+5} = 4.94$ cm

$d_1^1 = p_1^1 + e^1 + e^{11} + \frac{e^{11}(p^{11})}{f}$

$d_1^1 = 4.94+75+75+\frac{75\ (79.94)}{5}$

$d_1^1 = 154.94 + 15(79.94)$

$d_1^1 = (1354c \text{ or } 8.74d^*)105.4\%$

$d_1^1 = 9.21d^1$

But Lens 1 gives apparent distance of 6,824.65 cm.; therefore, combined effect of the lenses is:

6.824.65 cm. +9.21 cm. = 62,855 cm.
62,855 cm. = 628.55 m. or 2,055 feet.

The test is conducted as follows and may precede or follow the Holmgren wool test, as is desired. If it precedes, it will often indicate what to look out for in the wool test. The person to be examined is shown the semaphore lamps arranged in the triangle with the roundels in place; a clear, red and green or any combination that is used on his road, and is informed he is to state what the signals indicate; he is then seated behind the screen and the lenses placed in the telescope tube to give the lights the appearance of being about one half-mile distance. Several combinations are made which are recorded: Signal No. 1, "danger," "stop" or red; No. 2, "caution," "clear" or green or white; No. 3, "danger" or red, as the case may be. If the candidate wishes to give the name of the color or its indication, it makes no difference. The intensity of the lights may now be varied with smoke, ground or ribbed glass, or one or more of the lights may be blocked out by placing a blank in the cell. If there is some difficulty in interpreting the signals with the apparent reduction equal to one-half mile, arrange the lens to give the apparent reduction of less than one-half of a mile and try same. Other candidates may watch the proceedings, but are not allowed to communicate with the person being examined.

The main reason assigned by Dr. Charles H. Williams[9] for a supplementary lantern test is that "some cases are able to pass the wool test correctly and without hesitation, who when examined with the lights from a distant signal may be unable to distinguish the red or green with any reasonable degree of certainty, and, in fact, often confuse these colors. This occurs most frequently in cases of acquired defect in color vision caused by excessive use of tobacco or alcohol or by a combination of the two. In such cases there is often a small defect in the central part of the retina so small that the retinal image of the skein of worsted is large enough to be formed partly within the affected area, and partly beyond it, and if any part of it falls on healthy retina its color can be at once recognized. If the object is small, like a distant signal light, the retinal image is formed wholly within the affected area, and the color is not recognized. At night there is often no other means of distinguishing between safety and danger, except by the quick and accurate recognition of the color of a railway signal or the side light of a ship, and it is of a special importance that the test for color perception should include a test resembling as nearly as possible the conditions of service and of such a kind as to show conclusively, after the test has been made, whether the person can be relied on to recognize quickly and accurately the color of a distant signal light."

Such cases are rare and it would be natural to suppose that with a relative or absolute scotoma sufficiently large to cause confusion in the recognition of a distant signal, or blot it out entirely, the form vision would be so diminished as to throw out the candidate at once. The reducing lens test will meet the demand in such a case even better than the lanterns will, because of the radiating rays from the small opening. If three lights are displayed and only two seen, or the color not recognized of the third, or the two lights displayed and only one seen, it would lead one to suspect a condition as above described, and further tests should be made to ascertain the condition.

To summarize: The test fits exactly the conditions found in practice. The objects used in testing are the same used in actual practice, the person tested is required to designate what he sees either by name or to indicate its meaning, which he does in practice. The fault of all lantern tests is overcome by simulating distance, by a relative reduction in the size of the image. The factor which gives the success to the Holmgren worsted test, that of comparison, is followed, the impression of distance is maintained, and the test may be used as an office test. The only thing we can do is to produce a gale of wind or a rainstorm or the roar and noise of the engine for the benefit of the candidate while being examined.

128 Wisconsin Street.

DISCUSSION.

DR. CHARLES H. WILLIAMS, Boston, thought that a practical difficulty is that the men can give the names to the impressions which they receive from the two lights, although they may be extremely defective in color perception. They learn to give the name of green or red to a certain stimuli which they receive, where the choice is simply between the colors they have been in the habit of using, but on testing them with different shades of red or green the defect is discovered. It comes out clearly with the worsteds and with the testing lantern Dr. Williams devised some years ago. Dr. Gardner, of

9. Williams, Charles H.: "The Need of a Supplementary Lantern Test for the Proper Examination of Color Perception." Boston Medical and Surgical Journal, July 30, 1903.

Chicago, had a bright man who was decidedly defective in his color sense and Dr. Gardner told him that it was incurable. The man said he would cure himself and in a year's time came back and Dr. Gardner could not catch him. At the end of the test, however, the man happened to pick up a piece of glass from the table, saying, "Why, doctor, where did you get that beautiful green glass?" The glass was a ruby red, but a different shade of red from that with which he had been training.

DR. O. P. FRANK, Chicago, said that the formula given by Dr. Black does not take into account that the light varies according to the square of the distance. The focal length of the lens, the thickness of the glass and the source and kind of light must also be taken into account. Dr. Frank asked the source of the value of 105.4 per cent. He quoted Dr. Black as saying that the intensity of light loses 10 per cent. by reflection. Dr. Frank thought absorption was meant. The angle of incidence, too, must be taken into account, for the absorption varies according to the angle of incidence.

DR. W. R. PARKER, Detroit, reported that he had had patients who passed perfect examinations with the worsted who afterward failed with the lantern. One man had a miniature set of skeins with which he had spent hours practicing. He had so trained himself that he could tell all of the colors, and it was only by the comparative tests, two shades of the same color, that his color blindness could be detected.

DR. NELSON M. BLACK, Milwaukee, said that a change of shades can be had by slipping into the lantern any of the various shades of glass used in railroad work. This instrument is only in the experimental stage and the working out of the formula may be far from being perfect. It has been proven photometrically that 10 to 15 per cent. is lost by reflection and an additional amount by absorption. This can be seen when riding in a car at night and seeing the reflection of the whole interior of the car.

AN ANALYSIS OF FORTY CASES OF MENINGITIS IN INFANCY.*

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BOSTON.

These cases, equally divided between the tubercular and cerebrospinal forms, were all patients in the wards of the Infants' Hospital. The diagnosis was made in every case by autopsy or lumbar puncture. A marked predominance of mononuclear cells in the spinal fluid was considered diagnostic of the tubercular form, and of polynuclear cells of the cerebrospinal form. In all but three of the cerebrospinal cases the meningococcus was also found. This study was undertaken to determine, if possible, something as to the symptomatology of meningitis in infancy and as to the differential diagnosis between tubercular and cerebrospinal meningitis at this age.

GENERAL SUMMARY OF CASES.

Onset.—The onset was sudden in four of the tubercular cases, the first symptom being convulsions in three and coma in one. In the other tubercular cases the onset was slow. The onset was also sudden in four of the cerebrospinal cases, the first symptom being convulsions in three and high fever and vomiting in one. The onset was slow in seven of the cerebrospinal cases, definite symptoms pointing to the brain not developing until after from four days to two weeks. There was some vomiting in four, but no more than would be expected in any slight disturbance at this age. All had more or less fever, while in two the symptoms were those of a "cold." In the other cerebrospinal cases there were mild meningeal symptoms from the first. They were, however, not at all severe or rapid in their movement.

Duration.—The duration in the eighteen tubercular cases with complete records varied between one and forty-four days, being respectively, 1 day, 6 days, 7 days, 8 days, 9 days, 9 days, 11 days, 12 days, 13 days, 13 days, 14 days, 14 days, 15 days, 17 days, 19 days, 31 days, 31 days and 44 days. The duration in the 18 cerebrospinal cases with complete records was 7 days, 10 days, 14 days, 15 days, 18 days, 3 weeks, 4 weeks, 40 days, 7 weeks, 7 weeks, 7 weeks, 10 weeks and 6 months in the cases which died, and 4 weeks, 4 weeks, 5 weeks, 9 weeks and 3 months in those which recovered.

One of the patients who recovered developed internal hydrocephalus later and probably died. Two, at least, of the others were left paralyzed and blind.

Temperature.—The temperature was normal, or nearly so, in five tubercular cases which were under observation from 4 to 6 days at or near the end of the disease. It was also normal in four of the cerebrospinal cases during periods varying from 4 to 16 days in the midst of the disease, after which they passed from observation. It was always under 101° F. in three of each class, and went over 101° F. in 10 of the tubercular and 13 of the cerebrospinal cases. The temperature was markedly irregular in 6 of the tubercular and 14 of the cerebrospinal cases. A terminal rise was frequent in both series.

Pulse.—A slow pulse was unusual in both classes. It was under 100 in but 4 of the tubercular and 2 of the cerebrospinal cases. The lowest points reached were 70 in one case, 80 in two cases and 90 in three cases. A slow pulse was never constant, was never present at two consecutive observations and never lasted, even intermittently, more than a few days. The rate was usually rapid and was over 140 some or most of the time in 13 of the tubercular and in all of the cerebrospinal cases, in several instances being as high as 200. The pulse rate was almost always irregular in both classes and there was always a terminal rise.

Respiration.—A low respiratory rate was also very unusual. It was under 20 in only three of each class, and when low, never persisted any length of time. It went over 50 in 14 of each class. The rate of the respiration was almost always irregular and there was usually a terminal rise. Cheyne-Stokes respiration was noted in 7 of the tubercular cases and in none of the cerebrospinal. It probably occurred much more frequently than appears from these figures, however, as it was undoubtedly not recorded in many instances.

Nutrition.—The nutrition of the babies with cerebrospinal meningitis was on the whole much better at entrance than that of the tubercular cases. Emaciation was usually very rapid in both classes, although in rare instances the nutrition was wonderfully maintained in the cerebrospinal form.

Mental Condition.—In most of the cases of both types the patients were stupid or unconscious throughout the greater part of the disease. One of the tubercular patients, however, was conscious up to the last two days, and another up to the last three days of life. Stupor did not come on in two of the fatal cerebrospinal cases until after twelve days and four weeks, respectively, and three patients who recovered were conscious throughout the whole course of the disease.

Vomiting.—All the patients with cerebrospinal men-

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

ingitis vomited at some time. In five the vomiting occurred early and in seven late in the disease, while in the others it was present throughout. There was no vomiting in seven of the tubercular cases; in four it occurred only in the beginning and in four only late; in the others throughout the disease. Vomiting was explosive in only three of the cerebrospinal cases and in none of the tubercular.

Constipation.—Constipation was present in seven of the tubercular and six of the cerebrospinal cases, but was absent in the others. It was not marked in any case.

Restlessness.—Restlessness was noted in three of the tubercular and in none of the cerebrospinal cases.

Pain.—Pain was evident in five cases of each class.

Twitching.—This symptom occurred in six of the tubercular and in one of the cerebrospinal cases.

Convulsions.—Eight of the tubercular and nine of the cerebrospinal patients had convulsions. Nine of each class had none, while three of the tubercular and two of the cerebrospinal had none, unless they occurred after the patients passed from observation.

Neck Symptoms.—The neck symptoms, retraction, rigidity and tenderness, were much more marked in the cerebrospinal cases than in the tubercular, two or more of them being present in every case but one. They were all present in all but three cases, while in these there was either retraction or rigidity, or rigidity and tenderness. Retraction was noted in but six of the tubercular cases, rigidity in nine and tenderness in three, there being no neck symptoms whatever in eight. When they were present, moreover, they usually appeared late in the disease and were very inconstant. In the cerebrospinal cases, however, the neck symptoms usually appeared early and persisted throughout the disease, although they varied a great deal from time to time, not only in degree but in their combinations.

Paralysis.—There was no paralysis in any case in which there was no spasm. When there was spasm it was very difficult to determine whether there was or was not paralysis also, although in four of the cerebrospinal cases it was almost certainly present.

Spasm.—There was definite spasm of the extremities in thirteen of the tubercular and in fifteen of the cerebrospinal cases. It was absent in three of each class during the whole course of the disease, and in four of the tubercular and one of the cerebrospinal as long as they were under observation. Both upper and lower extremities were generally affected, but when only one was involved it was usually the legs.

Kernig's Sign.—Kernig's sign was present in three of the tubercular cases and in nine of the cerebrospinal. In three of the latter it was very marked. It was absent in eight of the tubercular and in six of the cerebrospinal cases throughout the whole course of the disease, and in four of the tubercular as long as the patients were under observation. In the cases in which it occurred it was usually inconstant and often present on but one side, the side also varying from day to day.

Knee Jerks.—The knee jerks varied from day to day in both series, being normal at one time and increased or diminished at another. They were almost always alike on both sides. They were increased at some time in eleven of the tubercular and in ten of the cerebrospinal cases; diminished in three of the tubercular and in five of the cerebrospinal and were absent in two of the cerebrospinal.

Ankle Clonus.—This was noted in but one case, which was of the tubercular type.

Strabismus.—Strabismus was noted in eight of the tubercular and in nine of the cerebrospinal cases. It is possible, however, that it may have been present in other cases and not noted.

Pupils.—Inequality of the pupils was noticed in but one case of each class. Failure of the pupils to react to light was noted in five of the tubercular and in six of the cerebrospinal cases. In most of these, however, the pupils at other times reacted to light. In the rest the reaction was always present.

The fundi were not examined in any of the tubercular cases, but were normal in five of the cerebrospinal cases, in several of which apparently the patients could not see. In one other, changes were found in the optic nerve.

Fontanelle.—The fontanelle was closed in three of the tubercular and in two of the cerebrospinal cases. It was level throughout the whole course of the disease in four of the tubercular and in two of the cerebrospinal cases, while in one of the tubercular it was level as long as the case was under observation. It was always elevated in seven of the tubercular and in eight of the cerebrospinal cases, and always depressed in one of each class. In the rest the condition of the fontanelle varied from time to time.

Abdomen.—The condition of the abdomen varied from time to time in most cases. It was always sunken in eight and always distended in two of each class. Spasm of the abdominal muscles was noted in but one case of each class. In the others the walls were always lax.

Spleen.—The spleen was palpable in three of the tubercular cases and in one of the cerebrospinal.

Leucocytosis.—The blood was examined in only four cases, two of each class. Both of the cerebrospinal cases showed a marked leucocytosis. One of the tubercular showed 9,000 leucocytes and the other 23,200.

Urine.—The urine was normal in the nine cases of the cerebrospinal form in which it was examined. It was normal in nine of the tubercular cases, while in three of the others there were evidences of slight irritation of the kidneys.

Eruptions.—There were no eruptions in any of the tubercular cases and in only one of the cerebrospinal. In this case there was a general herpetic eruption.

Lumbar Puncture.—One or more lumbar punctures were done in eighteen of the tubercular and in nineteen of the cerebrospinal cases. The pressure varied from time to time in the same case. It was designated as low in three of the tubercular and in seven of the cerebrospinal, normal in five of the tubercular and in two of the cerebrospinal, high in nine of the tubercular and in seven of the cerebrospinal, while it was not noted in three of each class. The character of the fluid varied from time to time in both classes. It was noted as slightly turbid in thirteen of the tubercular and eleven of the cerebrospinal, very turbid in two of each class and purulent in four of the cerebrospinal cases. The fluid was clear in three of the tubercular and in one of the cerebrospinal cases.

SYMPTOMATOLOGY OF MENINGITIS IN INFANCY.

It is evident from the figures just given that the picture of meningitis in infancy may differ materially from that which is given in most text-books as characteristic of the disease. Certain points of difference brought out by the analysis of these cases are especially

worthy of note. These are: the usual rapidity of the pulse and respiration; the infrequency and inconstancy of a slow pulse and respiration; the frequency of vomiting, both as an early and late symptom and the infrequency of explosive vomiting; the infrequency of constipation; the infrequency of manifestation of pain; the relative infrequency of convulsions and of Kernig's sign; the variability of the knee jerk; the absence of ankle clonus; the absence of bulging or even the presence of depression of the fontanelle throughout the whole or a part of the course of the disease in certain cases; the almost constant absence of retraction and spasm of the abdominal muscles; and the frequent diminution or absence of increase in the spinal pressure as shown during lumbar puncture. (It is probable, however, that the pressure shown by lumbar puncture often does not correctly represent the cerebral pressure.)

COMPARATIVE SYMPTOMATOLOGY OF TUBERCULAR AND CEREBROSPINAL MENINGITIS.

These figures also show certain points with regard to the comparative symptomatology of the two types of the disease which differ from the usual conception. It is noteworthy that the onset was sudden with convulsions or stupor in four of the tubercular cases, and that it was slow with no symptoms pointing directly to the nervous system until after several days or two weeks in seven of the cerebrospinal cases, while in only four of this type was there the sudden onset usually considered typical. The short duration of the disease in many of the tubercular case is very striking, being but a week or less in three and two weeks or less in twelve of the eighteen cases with complete data. The long duration in many of the cerebrospinal cases is also noteworthy, many lasting weeks or months.

The marked similarity in the degree of the symptoms in the two types is most striking. The behavior of the temperature, pulse and respiration was practically the same in both classes, as were also the mental condition, the vomiting and condition of the bowels. Convulsions and pain were about equally common. There was no essential difference in the behavior of the eye muscles. Spasm of the abdominal muscles was absent in both classes. Restlessness and twitching were rather more marked in the tubercular cases. These symptoms, however, are comparatively unimportant. The neck symptoms were much more marked and more constant in the cerebrospinal cases, while paralysis, spasm of the extremities and Kernig's sign were also, on the whole, more marked and more constant. The tendency to increased cerebral pressure, as shown by the level of the fontanelle, was also greater in the cerebrospinal form. The general condition of the babies was also rather better in this type. The spleen was enlarged rather more frequently in the tuberculous cases, but, as splenic enlargement is so common in infancy and arises from so many causes, it is probably of no importance in the diagnosis between these two conditions. The spinal pressure, as shown by lumbar puncture, was so variable and inconstant that no conclusions can be drawn from it. The character of the fluid, however, showed in a general way certain differences, the degree of turbidity being, on the whole, decidedly greater in the cerebrospinal cases.

The value of the presence of a reasonable cause for tubercular meningitis in differential diagnosis is shown by the frequency with which such a cause was present in these cases. There was a history of direct exposure to an adult with tuberculosis, usually a parent, in six. In another it followed a tuberculous knee and in two others tuberculosis of the lungs. In one it was subsequent to a bronchopneumonia and in another to whooping cough. In five cases, however, there was not only no known exposure to tuberculosis and no previous illness, but the babies were entirely breast-fed.

The examinations of the blood were too few to be of value in differential diagnosis. They showed the usual leucocytosis in the cerebrospinal form. The high count of 23,000 in a tubercular case, however, shows that the presence of a high leucocytosis does not justify the diagnosis of cerebrospinal meningitis.

Repeated lumbar punctures were done in a number of cases of both forms for the relief of pressure, the fluid being withdrawn until the fontanelle was level or slightly depressed. Improvement in the symptoms and in the patient's comfort was noticeable after each withdrawal of fluid, the symptoms returning again with the increase of the fluid. In no case, however, was any effect on the course of the disease noted.

CONCLUSIONS.

The picture of meningitis in infancy is materially different from that of meningitis in childhood and from that given in most text-books. The tubercular form has a more sudden onset and a shorter course than in later life. The symptomatology of the tubercular and cerebrospinal forms is essentially the same at this age, although the symptoms of spinal and, to a less extent, of cerebral irritation are, on the whole, more marked in the cerebrospinal. These differences, however, are insufficient to justify a differential diagnosis. The history or presence of a reasonable cause for the tuberculous form points strongly to this disease, but such evidence is frequently entirely wanting. A positive diagnosis between the two forms is impossible on the symptomatology and can only be made by an examination of the cerebrospinal fluid obtained in lumbar puncture. Lumbar puncture has no curative value in cerebrospinal meningitis, but is very useful for the relief of symptoms in both forms.

DISCUSSION.

DR. F. S. CHURCHILL, Chicago, said that Dr. Morse's experience coincides exactly with his and emphasized his remarks about the value of blood cultures. All physicians know how difficult it is to make a diagnosis of meningitis and how the blood cultures will often clear up the situation. The examination of the sediment of the spinal fluid is very important. Almost invariably it will show the character of the cells—the excess of lymphocytes, especially in tuberculosis. He asked Dr. Morse whether any differential blood count was made and if so if there was any difference in the lymphocyte count. Dr. Churchill stated that he saw an interesting case a year or two ago in which lumbar puncture was done; not, however, for diagnosis, but as a matter of scientific interest. The first puncture showed this excess of lymphocytes, but no tubercle bacilli. The diagnosis was confirmed at autopsy by finding the characteristic lesions. He also asked how many times a day examination was made for Kernig's sign. His observations show that sometimes one will find it and at other times it will not be possible to get it. At the autopsy of the case referred to one of the best pathologists in Chicago found no evidence of tuberculosis, except in the meninges.

DR. W. P. NORTHRUP, New York City, said that he thinks that there is no standard of psychical symptoms in meningitis. In the last epidemic of meningitis in New York it fell to his lot to classify and group the symptoms observed by the medical inspectors, and he came very close to the same hard rock that Dr. Morse struck. It seemed to him that the cases did not present the symptoms which would be expected. Dr. Northrup asked if there is a slow pulse in the onset of the disease. He indorsed what Dr. Morse and Dr. Churchill said

in regard to the lumbar puncture. Lumbar puncture ought to settle the diagnosis as to tuberculous meningitis. He mentioned one case in which practically no fluid could be obtained in the lower portion of the spine; on making the puncture from the upper portion as much as two ounces was withdrawn and this was repeated to take off the pressure. He said that Dr. Morse's paper is interesting in showing the variations from the standard set by the text-books. This has been observed in commission work. It seemed impossible in putting on a number of new inspectors to direct them to judge a case by a certain standard.

The lumbar puncture is also good for another purpose; for instance, in the case referred to an abscess developed in the vault of the pharynx. It seems to Dr. Northrup a good routine plan to do lumbar puncture to give some knowledge of the prognosis.

He said that during the epidemic in New York he had one patient who was sick for 155 days. She was a girl in splendid physical condition, a basket-ball player, and weighed about 120 pounds. In the last days of her illness she scarcely weighed forty pounds. This emaciation seems to Dr. Northrup to be one of the marked features.

DR. C. G. KERLEY, New York City, stated that Dr. Morse's observations coincide with his own. He agrees with Dr. Morse in regard to the value of lumbar puncture in the differential diagnosis of tubercular and spinal meningitis. Routine lumbar puncture is also valuable in another respect; for instance, it is very embarrassing for a man to make a diagnosis of tubercular meningitis, cerebral or spinal meningitis, and have the child get well after the administration of a dose of castor oil. It is bad for the practitioner and worse for the consultant. In recent examinations for the tubercle bacillus twelve cases have shown this bacillus in the meshwork of fibrin which sometimes forms in the spinal fluid.

DR. ARTHUR W. FAIRBANKS, Boston, mentioned two cases, one on account of the peculiar character of the onset, the other because of the peculiar postmortem condition. Both were cases of tuberculous meningitis in children 6 years of age. The first patient was a girl, brought to him because of uncontrollable disobedience, formerly having been a docile child. The condition began with having a temperature of about 101. The mind was perfectly clear, there being nothing but the lack of the former docility. On attempting to examine her the nearest approach was resisted with the greatest ill temper and attempts to scratch and bite. In striking contrast to this was the change which occurred eight days before death, when all resistance ceased and she allowed him to examine her with perfect freedom. Sensation was diminished. Her expression was that of having just wakened from a dream, and this same expression Dr. Fairbanks has seen in two or three other cases. She had internal strabismus in the right eye and had previously had it in the left. The pulse was at first irregular, but became normal. There was sinking away of the abdomen. There was no motor paralysis, except that of the abdominal muscles. On spinal puncture the clot in clear fluid did not reveal tubercle bacilli. She had some weakness in one extremity. The other case had been received in the ear ward of the hospital for otitis. There was improvement and transference was made to the medical ward. Tremor was noticed in each extremity. The discharge from the ear ceased completely. There was no twitching or other motor disturbance. This condition was promptly followed by ataxia and the child became unable to walk. The first thought was of an abscess in the cerebellum from the trouble in the ear, but the trouble had cleared up. During the last twenty-four hours the psychical condition changed. Dullness came over the child and it could not be prevented from falling asleep. The pulse suddenly dropped from 150 to 75, while the temperature steadily rose. Puncture of the spinal canal was made and the fluid showed a fine clot in the clear fluid. This illustrates Dr. Morse's point relative to the relief of symptoms. The child immediately brightened up, though it died soon after. The entire surface of the cerebellum was covered with tubercles and section of the vermiform showed complete caseation. The chief symptoms were ataxia and tremor, dullness of intellect, rise of temperature and lowered pulse.

DR. EDWIN E. GRAHAM, Philadelphia, said that in the differential diagnosis of tubercular and spinal meningitis he thinks almost all physicians are agreed on the value of lumbar puncture. Of course, the non-tubercular form may become the tubercular form. Recently he saw that occur in the wards of the Philadelphia Hospital. The child had been in the hospital for a non-tubercular meningitis for several months, and had been under observation in another institution for about four months. A few weeks before death, fluid removed by lumbar puncture showed the condition to have become tubercular and this was proved at autopsy. There must be a borderline where these two conditions meet, where the non-tubercular variety may become tubercular.

DR. WILLIAM J. BUTLER, Chicago, said that Dr. Morse's careful clinical study has presented the differences between a meningitis of infancy and that of later childhood so clearly that it hardly needs discussion. In the diagnosis of meningitis in infancy, however, the rigid neck, retracted neck, Kernig's sign and Babinski's sign all seem to have a minor place, whereas they are almost essential in the diagnosis of meningitis in adult life. Concerning the differentiation of tubercular and cerebrospinal meningitis, the diagnosis seems practically impossible, unless the meningococcus is found in the spinal fluid. In so far as the blood findings are concerned, Dr. Butler's experience is that they are practically valueless so far as leucocytosis is concerned, although he is in favor of the lumbar puncture because in the tubercular form one will find as high as 30,000 leucocytes present.

DR. J. L. MORSE said that no differential count of white corpuscles was made in the blood. Kernig's sign was only examined for daily; it may have been present at other times of the day when not tested. He feels that it is of comparatively little consequence. Concerning the leucocyte count and a differential diagnosis, of course, a high leucocyte count does not rule out tubercular meningitis, but he thinks that a leucocyte count almost rules it out. In regard to meningitis and the lumbar puncture, he said that at the clinic at the Infants' Hospital lumbar puncture will be done and the various fluids of spinal meningitis will be shown.

THERAPEUTIC VALUE OF CHRYSOPHANIC ACID IN DERMATOLOGY.*

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I desire to present in this paper some clinical observations and suggestions as to the value of chrysophanic acid as an effectual therapeutic remedy locally in certain superficial parasitic skin diseases.

Chrysophanic acid is obtained from "Goa powder" which is found in the heart wood or cavities formed by decay in the wood of *"Andira Araroba."* a tree found in Brazil. It is also found in Rhein, U. S. P., and is produced by the oxidation of Chrysarobinum, U. S. P., a constituent of Goa powder. Lieberman proved that in the latter the acid was very largely present and easily transformed by oxidation. It is a pale orange yellow microcrystallin powder, odorless and tasteless and which, on exposure, to air, turns a brownish yellow color. The remedy has long been used in Brazil, and has spread through Portuguese commerce to India and the East, while its general European and American employment is comparatively recent in certain varieties of skin disease.

It was first noticed in 1876, in London, England, in Fox's "Skin Diseases of India," and then since then it has at times been favorably endorsed as a dermatological remedy.

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

In some 65 cases of psoriasis it exerts a specific power and is therapeutically of great value. The following case reports illustrate its potency:

CASE 1.—Mr. A., aged 28, an active business man, a native of Connecticut, consulted me Jan. 28, 1906.

Family History.—Negative, except that two cousins had had erysipelas.

Personal History.—He had had no illness since childhood, except some infantile disease, but four years ago he noticed a series of patches over the extensor surface of both limbs, the tips of both elbows and both knees, and a few weeks later patches were found on the scalp and trunk. These were dry, red, primarily rounded in character, and covered with imbricated silvery adherent scales, much more copious on the scalp and forehead, but to a lesser extent on the extremities. He gave a history of treatment internally, but with little results, from arsenic, mercury and other special remedies.

Physical Examination.—Height, 5 feet, 10¾ inches; weight, 119 lbs.; temperature was 98.5; pulse, 74; respiration, 17. Lungs, liver, heart, spleen and kidneys were normal.

Treatment.—Believing that local remedies would be more effectual by removing and preventing the renewal of the scales, on January 28, I placed him on internally Pil. phosphori 1/30 grain, three times a day, and locally Unguentum chrysarobini, U. S. P., applied twice a day (10 per cent.) continued with semi-weekly observations until March 1, when pain in the epigastrium with copious diarrhea became constant, showing the maximum effect of the phosphorus, and this was discontinued. Then an ointment containing 20 grains of chyrsarobin to the ounce of benzoated lard, was ordered.

Course of the Disease.—On March 8 there was some improvement. Treatment was continued. March 15: There was marked improvement, only traces of the eruption were found on the abdomen and lower extremities. Treatment was continued. March 22: He had now steadily used the ointment since March 1. There were no traces of the eruption found in any portion of the body except faint stains on the right knee. March 29: There were no traces whatever of the eruption and he had no further trouble. The dark, yellow stains had disappeared, following the application locally of weak solutions of chlorinated lime, morning and night.

My conclusions were that after a certain time the antagonism of phosphorus of psoriasis finds its equilibrium, and that the antagonism in question, although real, nevertheless had a limit which falls short of a complete cure, but that the specific value of the acid in psoriasis seems to be now unquestioned. The following will illustrate its value in 114 cases of *eczema:*

CASE 2.—Mr. B., aged 18, a native of France, consulted me Nov. 28, 1905.

Family History.—Negative, except that two sisters had the same eczema.

Personal History.—The patient has always been well since childhood, but has suffered from eczema for the past nine years with no benefit from any plan of treatment.

Physicial Examination.—Lungs, liver, heart, spleen and kidneys were normal; height 5 ft. 8¾ inches; weight, 117 lbs.; pulse was 69; temperature, 98.5; respiration, 17. Eruptions were present on the scalp, face, trunk and lower limbs.

Treatment.—The patient was placed on proper diet and the bowels were kept freely open with tonics, which constituted the only internal remedy. Unguentum chrysarobini, xx grains to the ounce of benzoated lard, was ordered applied locally twice a day.

Course of Disease.—On December 1 there was some improvement, but I ordered the ointment applied morning, noon and night. December 15: The eruption had almost disappeared; treatment was continued. December 20: The patient presented himself with all eruption absent.

It is remarkable that what seems to be no more than a common irritant should possess so peculiar specific a value. Some who are opposed to its use say that it produces an eczema, and indeed it does, but in this very fact resides its virtue. I have used it in children with excellent results.

In Herpes circinatus it is also of value. The remedy was effectual in some 35 cases.

CASE 3.—Mr. C., aged 28, came to my office Nov. 30, 1905.

Family History.—Negative.

Personal History.—He had had no illness except pneumonia, eight years ago, from which he fully recovered.

Physical Examination.—Lungs, liver, heart, spleen and kidneys were normal. He is well-nourished; height, 5 ft., 11 inches; weight, 119 lbs.; temperature was 98.5; pulse, 71; respiration, 18. The eruption was extensive. There was a cluster of vesicles near the spine of the neck extending over the scapula, then to the shoulder and axilla, whence the main line ran along the outer side of the arm until it reached the elbow when it turned inward, followed the inner side of the forearm and went across the palm of the hand, terminating by several patches on the palmar and inner side of the ring finger.

Treatment.—The chrysarobin ointment was applied (20 grains to the ounce) morning, noon and night, with the necessary tonics and laxatives in the form of aperient waters.

Course of the Disease.—On December 5 the eruption had almost disappeared. Treatment was continued. December 15: The patient had no eruption and was apparently cured. December 22: The patient called and reported no return of the affection.

In sycosis I regard chrysophanic acid highly, as seen in the report of the following (one of eleven cases):

CASE 4.—Mr. D., aged 23, a native of Massachusetts, consulted me Nov. 20, 1905.

Family History.—This was excellent, except that one cousin on his mother's side had erysipelas.

Personal History.—He had pneumonia when 10 years old with full recovery; he had no other illness until the present, which was contracted some three months ago while away on a southern trip. Prompt treatment ever since had failed to give any except temporary relief.

Examination.—Papules and pustules were present involving the beard, whiskers and moustache, also to some extent the vertex, accompanied by inflammation and suppuration especially. When the hairs were extracted the seemed to be covered with a whitish powder. The patient was very nervous and had suffered from insomnia for nearly two weeks. Lungs, liver, heart, spleen and kidneys were found normal. Pulse was 68; temperature, 98.5; respiration, 17. There was general emaciation; he was about 22 lbs. lighter than when first taken ill.

Treatment.—Epilation was ordered and 20 grains of chrysarobin to the ounce of benzoated lard twice a day with needed tonics.

Course of Disease.—On November 30 there was some improvement along the sides of the face. I ordered the ointment applied morning, noon and night, and continued epilation regularly. December 3: There was marked improvement. December 7: The patient had fully recovered. December 15: There was no return of the disease and all the affected parts had become normal.

After epilation, the application of the acid seemed to enter the pustules and to strike at the root of the disease, the contents of the pustules being converted into a white substance, doubtless effectually destroying the offending parasite. This opens a new field for favorable observation.

DERMATITIS VENENATA.

Externally the application is liable to produce a peculiar deep, almost copper-red erythema, but after a few days the skin returns to its normal appearance. This shows the detergent properties of the acid, and all stains are soon removed by using a weak chlorinated lime solution. When the application of the drug is discontinued the bright red hue gradually changes to an Indian red; then in a few days desquamation occurs, and very soon the normal white skin is the result. The

best way to apply the ointment is to rub it thoroughly into the scaly patches with a swab or tooth-brush. As it stains the nails badly, I prefer, sometimes in order to confine the ointment to the diseased tract, to rub it into a soft paste with water and to rub it over the patches, especially in psoriasis from which the scales have been removed. When this is dried, a layer of thin collodion should be applied over each patch and allowed to harden as a protective coating. Subsequently the patches are removed and the white skin appears. My favorite formula is: ℞ Chrysarobini, 10 parts; acidi salicylici, 10 parts; etheris, 15 parts; collodii flexilis add 100 parts.

Paint over the patches every day until they disappear and smooth skin appears. This preparation should be used with great caution, however, and when the skin is irritable and the congested patches are increasing in numbers it is then contraindicated, like arsenic internally. When the eruption is disappearing, or when chronic-thickened patches remain unchanged for a long time, an ointment of varying strength will effectually and speedily remove the scales and lessen the infiltration. I am not in favor of using the remedy on the scalp or face ordinarily, because it discolors the hair and conjunctivitis may follow.

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DISCUSSION.

DR. HENRY G. PIFFARD, New York City, gave a brief review of the early history of chrysarobin, which is made from the goa powder, and comes from Bahia, a Brazilian port. The speaker said that there is a vast difference in the various preparations of the drug that are on the market; some are slightly inert, some have very little effect, and some are very active.

DR. WILLIAM S. GOTTHEIL, New York City, said that in using chrysarobin he did not expect to get the proper effect from the drug unless the preparation was sufficiently strong to produce a decided reaction of the skin. He frequently used a 30, 40, or 50 per cent. ointment, which in that strength made a semi-solid mass, his object being to produce an inflammatory reaction in the skin. Most of the poor results from the use of the drug could be attributed to the weak or inert preparations that were applied.

DR. JAMES C. WHITE, Boston, said that he did not agree with Dr. Gottheil that it was necessary to produce a dermatitis in order to get the beneficial effects of chrysarobin. Personally, he preferred to use it strong enough to get its curative effects only, without producing a dermatitis. The latter was largely a matter of individual idiosyncrasy; in some persons a dermatitis would develop from its use, while in others such a result would never follow. The same is true of certain other drugs.

DR. R. A. MCDONNELL, New Haven, Conn., in referring to the objection to the use of chrysarobin on the scalp for fear of causing a conjunctivitis, said that he had applied it in many cases of fungous disease of the scalp with very satisfactory results, and without producing a conjunctivitis. He regards it as one of the most reliable remedies, particularly in parasitic diseases of the scalp.

DR. EDMUND L. COCKS, New York City, said that about a year ago he treated ten cases of parasitic disease of the scalp with chrysarobin with undoubted success, and without any resulting conjunctivitis or dermatitis. The scalp was first shaved, and then a solution of chrysarobin, one dram to two ounces of collodion, was painted on every second or third day, and reapplied as often as the application cracked.

DR. HENRY C. BAUM, Syracuse, N. Y., said that he thought the chrysarobin should only be used on the scalp in exceptional cases. Kaposi himself had warned his pupils regarding the possible dangers of applying the drug in that locality. Dr. Baum said that he had seen a number of cases of violent dermatitis follow the use of chrysarobin on the scalp. He recalled one instance where a physician had applied a small amount of chrysarobin to a ringworm of the nose in a young woman. It produced a violent dermatitis which extended to the eyes, and culminated in complete blindness. In every instance in which the drug was applied to the face or scalp, the case should be watched with the greatest care, and only a small area treated at a time until the individual idiosyncrasy of the patient could be determined.

DR. L. WEISS, New York, said that in using chrysarobin on the face or scalp, the possible resulting dermatitis could be prevented from spreading by the application of zinc gelatin, which acts as a compress.

GENERALIZED MULTIPLE PIGMENTED SARCOMA ORIGINATING IN THE SKIN.*

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AND
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The subject of this paper is generally recognized as presenting a distinct clinical picture, differing from all other sarcomata. The metastases may invade all the soft tissues. The distribution of the metastases appears to be by way of the blood stream and the lymphatics. There is always pigmentation, sometimes much, at other times little. In the same case we may find one nodule black and another white. The pigment is unevenly distributed. Some of the metastatic tumors appear entirely without pigment, while others in the same case are deeply pigmented. This pigment is the dark-brown, granular material known as melanin and is the same material that we find in normal skin and in pigmented moles. The disease is one of the most fatal of malignant tumors, and after metastases take place the case is practically hopeless.

The cases of multiple pigmented growths which are recorded as recovering either spontaneously or by arsenical treatment are evidently not of this variety, but probably can be placed in another class, described by Boeck[1] as "multiple benign sarcoid of the skin." Boeck has still further studied this disease in more recent cases and concludes that it is allied to tuberculosis, and therefore suggests the name *benignes miliar lupoid*[2] as a suitable one.

The beginning of this very malignant disease is most frequently in a pigmented mole, but not always so, as one would be led to believe by Unna's statement.[3] Crocker[4] reports a case which began as a blister, apparently due to friction on the outer side of the right foot. In the course of five months it became a fungating mass, slightly pigmented. The primary tumor was excised and followed promptly by metastatic tumors distributed through the body generally, which proved fatal in four months from the removal of the first tumor. In his report of a series of cases, J. C. Johnson[5] says of Case 7: "A most careful search failed to reveal any nevus or other melanotic growth of the skin or mucous membrane. There was no scar resulting from the removal of such tumor." In the body of his paper he intimates that the origin of this case may have been in the cortical por-

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

1. Jour. of Cutaneous and Genitourinary Diseases, vol. xvii, p. 543.
2. Archiv. für Dermat. und Syph., vol. lxxiii, p. 332.
3. "Histopathology of Diseases of the Skin," p. 745 (Walker's Translation).
4. Crocker: "Diseases of the Skin," third edition, p. 102.
5. "Melanoma," Jour of Cutaneous Diseases, vol. xxiii, p. 59.

tion of the adrenal, and cites another case in which the origin was claimed to have been from the same structure. In one of the cases reported in this paper the first tumor observed was on the glans, at the edge of the meatus. In a few months this became a fungating mass, involving the entire glans penis, on account of which the penis was amputated.

Melanotic whitlow is also mentioned by Crocker and by Johnson. It was first described by Hutchinson and begins at the nail fold without the appearance of a nevus.

We must also recognize the fact that pigmented sarcomata originate in the eye, and if not early removed give rise to the same generalized metastatic tumors. There seems to be no attempt on the part of oculists to call these by any other name than sarcomata. Johnson, in his work on "Melanoma,"[6] gives statistics gathered by Eves, which indicate that of 261 cases of generalized melanotic tumors 84, or about 32 per cent., originated in the eye, while 177, or about 68 per cent., originated in the skin.

Before 1893 the disease was recognized as "multiple pigmented sarcoma." In that year Unna published his work on the origin of pigmented moles[3] or soft nevi. In this work he tries to show that these are derived from epithelium, and hence that tumors originating in them are carcinomata. To these he gives the name "nevocarcinoma," a name which he considers expressive of the character and also of the origin of the disease. The work and the opinions this great investigator gives to the world always demand consideration. His opinion on this subject gave a new impetus to the original work and caused a difference of opinion among investigators. Some agree with Unna, while others do not. In this country Gilchrist,[7] Schalek[8] and Ravogli[9] are advocates of Unna's theory. The recent work of J. C. Johnson on "Melanoma" is intended to prove that the tumor cells of pigmented moles are derived from the endothelium of superficial lymphatics.

This investigator has gone thoroughly into the histology of "soft nævi" and also of malignant melanotic tumors and his opinion is certainly entitled to careful consideration. In this work, however, he also records other melanotic growths which he unhesitatingly pronounces carcinomatous. There are also other cases of undoubted melanotic carcinomata on record. Prof. Eduard Lang[10], February 17, 1905, reported to a Vienna medical organization, (*K. K. Gesellschaft der Aerzte in Wien*) a case of very extensive growths in a man 52 years old. The duration of the disease was 23 years and very many pigmented lesions were present, which proved on histological examination, to be carcinomatous.

In 1904, Dr. W. W. Keen read before the surgical section of this Association a paper entitled: "The Danger of Allowing Warts and Moles to Remain Lest They Become Malignant."[11] This paper is of great clinical interest. It gives the clinical histories of 25 cases of malignant tumors originating in these apparently innocent growths. Some of these were sarcomata while others were carcinomata. From case histories the carcinomatous melanotic tumors appear much less rapid in their fatal effect.

6. Jour. of Cutaneous Diseases, vol. xxiii, pp. 1-49.
7. Jour. of Cutaneous and Genitourinary Diseases, vol. xvii, p. 117.
8. Jour. of Cutaneous and Genitourinary Diseases, vol. xvii, p. 145.
9. Jour. of Cutaneous and Genitourinary Diseases, vol. xx, p. 510.
10. Wiener klin. Wochft., Feb. 23, 1905.
11. THE JOURNAL A. M. A., vol. xliii, p. 96.

Prognosis in these cases is of the very worst. Treatment seems to accomplish nothing. Arsenic and other tonics are of no avail. Coley's toxins do no good, and even the wonderful *x*-ray seems of no value whatever. The only thing that offers any encouragement is complete excision of the primary tumor. Even this fails many times, either because the operation is not radical enough, or because the tumor cells have already been carried some distance from the original site of the disease. In the first case of this series, the original growth was apparently completely excised and yet it was only a few months before metastatic tumors made their appearance. In a number of Dr. Keen's cases the original tumor was completely excised, but the operation was followed in a short time with generalized distribution and death. Yet if these tumors are excised, with a wide margin, quite early in their development, a few days after growth can be observed, we believe a fatal termination can often be avoided. The patient in the first of the following reported cases was observed rather closely by me during the last three months of his life. The development and multiplication of tumors were rapid.

CASE 1.—Male, aged 65. He has been married 42 years and has raised a family of four children, all of whom are living and well. His wife is also living and moderately healthy.

Family History.—His father died with pulmonary hemorrhage (tuberculosis) at 55. His mother died at 35 with some acute puerperal disease shortly after the birth of a child. One sister is living and healthy at the age of 68. One brother died in infancy; one with acute paralysis when 63 years old; one was a "hard drinker" and died at 66 directly following a spree, from some cause not known; and the last brother died at 65 with "nervous prostration." This last brother had a hard lump on one hand in the last years of his life.

Personal History.—The patient states that eczema was a family inheritance, and that most members of the family suffered more or less with this disease in youth. The patient had "scald head" from babyhood until about 20 years old. Aside from this he was a healthy man all his life until about July, 1903. His occupation was farming until 1897, first in Minnesota, then in Nebraska and Oklahoma. He served one year in the Army, under Thomas in the Civil War. In 1897 he moved to Salt Lake City and engaged in mission work—keeping rooms and providing food for the poverty-stricken class of people there.

For many years (he does not know how long) he had a mole of a brown color on his back between the shoulders. He first noticed this begin to grow in July, 1903. About a month previous to this he had a pleurisy on the right side. The mole seemed to become inflamed and painful and continued to grow. He sought medical advice and was advised to have the tumor excised, which he did perhaps two months after first observing the increase in size. A few months later he observed a growth in the right axilla and another on the right side of the neck. These were entirely subcutaneous.

Examination.—I first examined this patient in July, 1904. He came to see me because his general health seemed to be below par, and because instead of one tumor on his back a group of six or eight had made their appearance. The one in the axilla was becoming uncomfortable on account of its size. It was at that time about the size of a hen's egg and quite hard. Those grouped on the back varied in size from a pea to an ordinary marble; some were almost entirely subcutaneous while others quite decidedly involved the skin. Some were bluish in color while others seemed simply red, no pigment apparent through the skin. One of the most prominent of the skin tumors was excised for histologic examination. It was quite firm to the touch, and alveolar in structure, with a moderate amount of pigmentation.

Subsequent History.—After this he went to the sanitarium at Battle Creek, Mich., where another nodule was excised, and he was advised to return home since chances for successful treatment were practically nil. Arsenical treatment was given

a trial without benefit, also tonics such as quinin, iron and strychnin. No improvement followed, but more nodules continued to appear, and they were seen to appear farther from the site of the original tumor. As a last resort hypodermic injections of Coley's toxins were administered. Six injections were given from August 7 to September 2 without any improvement whatever, but instead, new nodules continued to appear almost daily. Since the injections rendered him quite uncomfortable for two or three days, a rise of temperature following each one, we listened to his objections and desisted from its farther use. By this time the nodules were scattered all over the body, back, abdomen, legs, arms and even the backs of the hands. Patient said he felt as though there were some growing in his stomach. As the disease advanced it seemed to progress more rapidly. About the first of October the man was no longer able to retain food, vomiting was frequent, and food taken in the stomach seemed to distress him, so he quit taking any for a week or more. Still the nausea and vomiting were present. A little later his right leg became cold and numb —due to pressure of a large tumor as ascertained at autopsy. October 26, at 10 p. m., he died, and at 9 a. m. October 27, an autopsy was held.

Autopsy Report.—Man, 6 feet 2 inches in length, emaciated. Tumors distributed over the surface of the body generally. Small on abdominal surface and purple blue. Over back, larger and black in color, elevated mushroom-like. Subcutaneous fat practically nil. Abdominal cavity contains small quantity of gas. Pericardium full of fluid. Whitish-red tumor nodules on the surface of pleura and liver, in mesentery and in the epiploica of colon. They vary in color from pinkish white to dark liver color. Small amount of serous fluid in abdominal cavity. Dilated gall bladder filled with bile and reaching to crest of ileum. Thoracic duct full of nodules. Large white nodule situated at the bifurcation of the iliac artery. The stomach presents a large dilatation at the cardiac end and appears diminished in size at the pyloric end. Stomach is slightly adherent at spleen. Large masses of tumors cover a diphragmatic hernia at the cardiac end of the stomach. Half pint of bile-stained fluid in stomach. No nodules in the stomach. Pancreas contains tumor nodules throughout its length. Large tumor masses at head of pancreas occlude common duct, causing dilatation of gall bladder. Left adrenal gland much enlarged and full of tumor nodules. Left kidney normal in size and contains a few subcapsular tumors and many in the perinephritic tissue. Large quantities of clear fluid in left pleural cavity. Left lung small and flabby. Peribronchial portion contains tumor masses. The upper portion of lower lobe is emphysematous. Section into this region reveals a quantity of greenish-yellow pus. Right lung normal in upper portion, but presents consolidation in lower half and over the surface is scattered a small number of white nodules. The consolidated portion when cut discharges quantities of bloody fluid. No deep-seated nodules discovered. Pericardium full of nodules greatly thickened and distended by straw-colored fluid. The heart presents innumerable tumor elevations over its entire surface, destroying the landmarks of the organ. Nodules are all firm and vary in color from white to a deeply pigmented—almost black. Liver is normal in size, of a dark brownish color, mottled with lighter areas and presents on its surface several nodules.

The most striking thing in this case is the great tumor development on and through the heart, and next to this the number developed in the thoracic duct.

We are indebted to Dr. Geo. M. Gray of Kansas City, Kans., for the history of this case.

CASE 2.—Male, aged 33, was admitted to St. Margaret's Hospital, Nov. 17, 1904. Nationality Irish, single, occupation, stone-cutter. Residence, Kansas City, Mo.

Previous History.—He had what was supposed to be a chancre 18 months ago, and after treatment for a period of six months the penis was amputated. (The surgeon who amputated the penis writes that the growth was cauliflower-like and involved the entire glans. He saw the case first Dec. 11, 1903, and performed amputation Dec. 22, 1903. He supposed it a case of syphilis and gave antisyphilitic treatment. The enlarged glands in the groin diminished in size after the amputation. The patient disappeared from his observation about three weeks after operation.) At the time the penis was amputated the inguinal glands were enlarged and one in either groin above Poupart's ligament was as large as the end of the index finger. These continued to grow after the penis had healed, and one on the right side broke down, discharging a very offensive fluid, and on account of this condition he applied to St. Margaret's Hospital.

Family History.—His father is dead; his mother is living and in good health. One brother and three sisters are living and in good health.

Present Illness.—The trouble began 18 months ago with a sore on the penis near the meatus, which persisted in spite of all treatment for six months, when the penis was amputated. This sore made its appearance about three weeks after venereal exposure and was supposed to be venereal. Before the penis was amputated the glands in both groins began to enlarge, but following the amputation he thinks they diminished somewhat except the larger ones. During the past 11 months they have been steadily enlarging until two weeks ago, when the mass on the right side broke down, discharging a bloody fluid of very bad odor.

Examination.—This revealed a large mass on each side of median line well above Poupart's ligament. One on right side was ulcerated. These masses were excised Nov. 21, 1904. At the time of operation I could make out nodular masses extending down into the pelvis on either side supposed to be glands.

Postoperative History.—He left the hospital Jan. 26, 1905. Before he left it was observed that something was not right mentally; and he left the hospital without permission or advice from the doctor. After this date we lost track of him for 18 days, but we can readily understand that during these days there was continued development of tumors with more evidences of brain disturbance. On February 13 the ambulance of the Kansas City General Hospital was sent to move him from a rooming house to the hospital. It seems the driver or those in charge of the ambulance did not fully appreciate the man's condition and he was permitted to fall down a flight of stairs. He was picked up in an unconscious condition and taken to the hospital, where he died the next day without regaining consciousness. The autopsy was made about 24 hours after death. The development of the sarcomatous tumors in the brain was considered sufficient to account for the mental disturbances noticed in the last few weeks of his life and for the unconscious condition 24 hours before death.

Autopsy Report.—Male, aged 33, length 5 feet 7 inches, weight 140 pounds.

External Appearance: The whole anterior surface of the body is covered with dark, smooth nodules varying in size from a wheat grain to a walnut and having a pale blue color through the skin. The glans penis has been amputated and there are operative scars in both inguinal spaces.

Brain: On removing skull the brain is found to contain several deeply pigmented nodules about an inch in diameter that adhere to the dura.

Abdomen: On opening the abdomen the intestines are found to be collapsed and the great omentum crumpled up under the stomach. Abdominal cavity free from fluid. Mesentery of small intestine full of blood. Duodenum bound down by adhesions.

Stomach lies well to the left of body and contains fluid; surface is smooth. From cut surface tarry blood exudes.

Liver is somewhat large, right lobe dark prune color. Right adrenal taken away with liver. Liver contains no nodules, but cut surface is a dark mahogany brown and blood exudes from it. Gall bladder is normal—free from stones.

Spleen normal in size, olive-shaped, anterior portion contains chestnut-sized nodule which is soft in consistency and contains cystic center.

Pancreas normal in size and position. Splenic end enveloped in adhesions containing tumor nodules.

Sigmoid flexure shows large lymphatics.

Left kidney possesses no perinephritic fat and lies in normal position. Adrenal attached to kidney. Kidney surrounded by a

mass of tumors which lie external to the gland. Section of organ shows reddish-brown surface, uniform in color except at tips of pyramids, which are whitish. No nodules in kidney. Right kidney surrounded with a quantity of clotted blood. Organ similar to left except that there is a large nodule within the pelvis. Retroperitoneum full of nodules along the line of great vessels especially. Some tumor masses in the anterior peritoneum.

Thoracic Cavity: Lungs collapsed, left free and right adherent in upper portion where the apex is tightly fixed and contains many calcareous deposits. Lungs present hypostatic condition in posterior part. Anterior portions crepitate throughout. Nodules of various sizes all through the lungs. Pericardium covered with nodules up to the size of a pea. Pericardium contains small quantity of fluid. Two dark corn-grain sized nodules situated at base of heart near pulmonary artery. Small quantity of thin blood in right heart. Left heart contains tarry blood. Valves of the heart normal and muscles also normal.

Within the urethra near where the glans was amputated is a small, black, pea-sized tumor. It is situated in the mucosa

Fig. 1.—Low power drawing from a small, cutaneous nodule from Case 1.

and tends to obstruct the lumen of the urethra. The tunica vaginalis of the right testicle contains fluid. A few pea-sized tumors are found beneath the tunica. Within the testicle substance one small nodule. Left testicle contains no palpable tumor.

The point of greatest interest in this autopsy was the discovery of the tumor in the urethra. It was very dark, in fact the blackest one found and involved only the mucous membrane. We were led to speculate on the possibility of this being the real primary tumor in this case. I have not been able to find, in the literature, another case of the original tumor developing on or in the penis. Cases of sarcoma of the penis have been reported, but not of this variety, so far as I have been able to ascertain.

CASE 3.—This case was in the practice of Dr. George W. Davis. Dr. Reyling made the histologic examinations and sent specimens to various other pathologists. It has been reported as Case 3 in Dr. Johnson's[12] series of cases. The photographs are of this case and show the distribution of the tumors over trunk, arms and face. Tumors were also on the other parts of the body. The photographs were taken and kindly furnished me by Dr. J. W. Perkins, who saw the case in consultation. The history of this case was difficult to obtain, but the origin was supposed to be in a pigmented mole. The tumors were extraordinarily numerous and very dark. Dr. Johnson says, in his report, that the very dark color was due partially to minute hemorrhages into the tissue.

We wish to place case 4 on record as it is one of the infrequently observed cases of melanoma occurring in the black race.

Patient.—This was a colored woman who came to the Kansas City General Hospital about two years ago because of a decline in health and the general development of tumors all over her body. She was about 30 years of age and of good muscular development. No family history was obtained by me.

Examination.—Her skin was a dark brown, but the tumors were much darker than the other skin. They varied in size from a pinhead to a good-sized marble, and some of them stood out very prominently, in shape resembling very much an or-

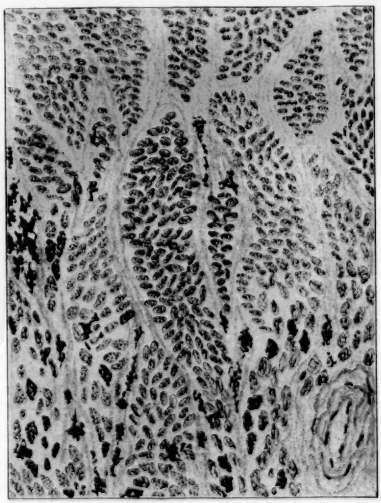

Fig. 2.—High power drawing from the same, showing alveolar structure, distribution of pigment and type of cell.

dinary, smooth doorknob. Many of these tumors left no doubt of the involvement of the skin in the growth, while others seemed to be subcutaneous. The origin was said to be in a mole. In the week that this patient was at the hospital many new tumors were observed springing up. The case was certainly one of this character.

Dr. T. C. Gilchrist[13] reports a case in a negro man, with microscopic report of tumors, and remarks that he could find but two other cases recorded in colored people. We intended securing a nodule for histologic examination and also a photograph of the patient, but she escaped from the hospital before either could be done, and was not heard from afterwards.

12. Jour. of Cutaneous Diseases, February, 1906.
13. Jour. of Cutaneous and Genitourinary Diseases, vol. xvii, p. 118.

DISCUSSION.

DR. DAVID LIEBERTHAL, Chicago, said that he thought the title of the paper presented by Dr. Hail was misleading. Instead of multiple pigmented sarcoma, it should have been melanosarcoma. The name multiple pigmented sarcoma should be limited to the type first described by Kaposi in 1879, of which there are over a hundred cases recorded. This type differs from melanosarcoma in its clinical aspects and course. It usually first develops on the dorsal surface of the hands and feet, and gradually spreads upward, at last invading the internal organs, such as the liver and intestines, especially the large intestine, terminating fatally in six, seven or even twenty years. It never develops from warts, but has its origin in apparently normal skin. In its histologic appearance it differs markedly from melanosarcoma in the arrangement of the cellular elements. The pigment in melanosarcoma is mostly melanin, while in the multiple pigmented form hemosiderin is prevalent. Both of these forms of sarcoma, Dr. Lieberthal said, are ultimately fatal. With melanosarcoma the course is usually a brief one. As regarded treatment, nothing seemed to have any influence but the *x*-ray, which, according to latest reports, benefits materially the lesions of the multiple pigmented type.

DR. A. RAVOGLI, Cincinnati, said that he agreed entirely with Dr. Lieberthal regarding the distinction between multiple pigmented sarcoma and melanosarcoma. He recalled a case of the latter affection which proved fatal in the course of four or five months. It first appeared as a small, warty growth on the foot, and was followed in a short time by an enormous enlargement of the glands in the groin, and the case rapidly progressed to a fatal issue. Dr. Ravogli also mentioned a case of multiple pigmented sarcoma of the Kaposi type, consisting of smooth, brownish spots on the leg, and which ran a course extending over a period of five years. These cases, he said, must also be differentiated from melanosarcoma, of which affection he saw an instance in a woman who presented herself with an apparently simple lesion which was regarded as a nevus. Starting from this lesion, the disease rapidly spread over the chest, the breasts also becoming involved, and the patient died in the course of four or five years, in spite of the use of the *x*-ray. Large doses of arsenic were also given without avail. It is important to differentiate between these three affections, he said, especially on account of the different prognosis that is attached to each.

DR. ALEXANDER J. ANDERSON, Newport, R. I., reported a case that came under his observation about 18 months ago. The patient was a woman who had had some glands removed from the left groin about five years before, which were supposed to be carcinomatous. When Dr. Anderson first saw her, about 18 months ago, she had a pigmented lesion about the vulva, which was removed by a surgeon. It had the appearance of a melanotic growth, but the pathologist pronounced it a lymphoma. A year later, when Dr. Anderson again saw the woman, the pigmentation at the site of the previous lesion was well marked and she had a new growth, about the size of a duck's egg, in the right groin, which proved to be a melanosarcoma. The patient recovered from that operation, but before she could receive further treatment, metastatic growths developed in the breast and elsewhere, which proved fatal in the course of a few months.

DR. B. W. STEARNS, Binghamton, N. Y., stated that he had given the subject considerable attention for the past six years, and he is inclined to believe that too much emphasis is laid on the classification of malignant growth and too little on the treatment. He also referred to the fact that the course and development of these growths seems to be influenced by the constitution of the patient. Their locality and other factors should be borne in mind in diagnosis. Thus far the only treatment accepted by the profession generally is the early removal either by the knife or by caustic pastes. If all the physicians of a city or certain locality would place all cases of malignant growths under the care of one physician who is interested in the subject, perhaps in the future some more successful line of treatment might be developed. He referred to a case of epithelioma of the temple which was excised. At the same time there was some enlargement of a section of the parotid gland, which was not interfered with, the reason given by the surgeon being that it would have destroyed the duct. After three years the growth returned at the site of the original lesion and gradually extended over the face. A fatal issue is expected, and all that can be done for the patient now is to keep her comfortable by the application of a dressing which relieves the pain and removes the offensive odor. The dressing in this case is:

B.	Thiosinamin	gr. xx	1 3
	Atropini	gr. i	06
	Adrenalin, chl. solut.		
	Ergotini		
	Fld. ext. thuja, āā	℥ss	2
	Cocainæ hydrochlor	gr. x	6
	Alcoholis dil. q. s.	℥i	30

This was applied with absorbent cotton and gauze daily.

DR. HALL said that he is not in a position to discuss the subject in a clinical way, as his work is limited to pathology. He agreed essentially with the statements made by Dr. Lieberthal.

THE TREATMENT OF LATERAL CURVATURE OF THE SPINE.*

ROBERT W. LOVETT, M.D.
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The treatment of lateral curvature of the spine presents the most difficult problem in the orthopedic surgery of to-day. This is, in part, because of the intrinsic difficulty of the problem and, in part, because the treatment of this condition has been, in a measure, relegated to the domain of gymnastics and, to a certain extent, set apart from other surgical deformities and considered as an affection outside of the ordinary surgical principles.

The treatment has consisted, in a large measure, of inadequate and irrational gymnastics sanctioned by tradition and often carried out by persons with a very imperfect knowledge of the subject.

The following statistics[1] collected among school children show lateral curvature of the spine in a surprisingly large percentage of all cases:

	Number of Children.	Per cent. of Scoliosis.
Guillaume (Neuchatel)	731 (boys and girls)	29
Krug (Dresden)	1,418 (boys and girls)	25
Hagmann (Moscow)	1,664 (girls)	29
Kallbach (Petersburg)	2,333 (girls)	26
Scholder (Lausanne)	2,314 (boys and girls)	24.67

There is no reason to suppose that American children are any less affected than the children in Germany, Russia and Switzerland.

Any pathologic condition which affects 25 per cent. of the children of a community is worthy of serious consideration. The deformity should be considered as a definite surgical problem to be met by adequate surgical means.

In taking up the treatment of this condition it is of great importance to recognize two distinct types which have not been sufficiently separated. These are (1) the postural or functional and (2) the structural or organic type.

THE POSTURAL OR FUNCTIONAL TYPE.

This type of lateral curvature of the spine has been described as "lateral curvature without rotation," faulty attitude, functional malposition and by similar names,

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* Read before the Surgical Section of the Medico-Chirurgical Faculty of Maryland at Baltimore, Dec. 15, 1905.

1. The data on which much of this paper is based are contained in these articles: R. W. Lovett: Boston Med. and Surg. Journal, June 14, 1900; Oct. 31, 1901; March 17, 1904; Sept. 28, 1905. Also Am. Jour. of Anatomy, vol. ii, No. 4, p. 457. Schulthess, Schanz and Lovett: Verhandl. d. Deutsch. Gesellch. f. Orth. Chir., vol. iv.

all of which are fairly descriptive. It is characterized by a single curve of the spine of slight degree, the deviation of the most divergent of the vertebræ being rarely more than an inch from the median sagittal plane of the body. This median plane of the body is best recognized by holding a string with a weight on its lower end behind the patient which serves as a plumb line falling below in the cleft of the buttocks. The spinous processes of each of the vertebræ should be marked on the skin by ink or a flesh pencil. In the normal spine each one of the marks should lie under the plumb line, and total scoliosis is recognized by a gradual sweep of the vertebral column, most often to the left, 90 per cent. of all cases of total scoliosis being to the left and 10 per cent. to the right.

Taking this, the most common type of postural curvature, the left total curve, the diagnostic points are four.

1. The spine is involved in a gradual sweep, with the convexity to the left, returning nearly or quite to the median line at the top.

2. The left shoulder is high and the right shoulder is low.

3. In looking down on the child from above, the shoulder girdle is seen to be twisted in its relation to the pelvis and no longer lies in the same plane, the right side of the shoulder girdle being carried back and the left side forward. This is clearly seen by standing above the child and sighting the back of the upper thorax against the buttocks, when it will be seen that the right side of the shoulder girdle is further back than the left. This is an expression of the rule that a spine can not be bent laterally without at the same time twisting.

The attitude is, therefore, a physiologic malposition within the normal movements of the spine and implies no organic change in the vertebræ, ligaments or muscles. Such changes exist, of course, in cases of long standing, but so long as the type described persists there is no evidence of anything further than an exaggerated physiologic position.

4. If the child with a left total scoliosis bends forward until the trunk is horizontal, the right side of the back is generally to be found higher than the left when one glances along the level of the spine from behind or in front. The elevation is very slight and has been the cause of much discussion, having been very imperfectly understood and being described under the names of concave-sided torsion, retro-torsion, etc. It is evidently merely the persistence of the backward twist on the right side described under the previous heading, which is carried over into the position of forward bending. It is to be reproduced with the model or child who stands with the right foot on a book and is within the physiologic limits of the normal movements of the spine. Postural scoliosis is, therefore, best described by the name "faulty attitude," and its treatment is greatly cleared up by this conception. Such postural curves may persist unchanged as total curves, they may be cured, or they may be changed into compound structural curves.

Transitional cases from the postural curves to structural curves are, therefore, to be expected, and it is well to be on one's guard against apparent cases of postural scoliosis in which one or more of the signs described are wanting, as many of these on investigation will be found to be cases changing from postural to structural types.

STRUCTURAL OR ORGANIC LATERAL CURVATURE.

In this form of lateral curvature there is to be found an organic change in the vertebral column and its attached structures. Structural curves may be either single, involving the whole or a large part of the spine, in a curve convex in one direction, or they may be compound (combined), consisting of two curves in different parts of the spine with their convexities in opposite directions. Even three curves may be seen, one being the principal curve with two curves in the opposite direction, one above and one below. One curve is evidently the primary one and the others are spoken of as secondary or compensatory, although it is not always possible in severe cases to identify the original curve.

The characteristic feature of structural scoliosis is the presence of a backward prominence of the chest or loin on the convex side of the lateral curve, that is the side toward which the spine yields. In the postural scoliosis described above it has been seen that the backward prominence is on the concave side of the lateral curve, that is to say, in a left curve it is on the right side. In structural scoliosis this prominence, on the other hand, is always on the left side in left curves and on the right side in right curves. In extreme cases it forms a very great deformity and can be clearly seen when the patient stands erect. In mild cases the patient must bend forward with the trunk in the horizontal position to enable this so-called rotation to be clearly evident when it is noted in a difference of level of the two sides of the thorax or of the two sides of the lumbar region. This convex-sided rotation is not within the normal mechanism of the spine and is to be regarded as a superadded pathologic phenomenon due to the yielding of the structures forming the vertebral column. In many cases we can assign no better cause for it than to assume an abnormal plasticity of bone in the individual case which has led the vertebræ, under the influence of unequally distributed weight, to yield to one side and in yielding to twist.

In case of every structural lateral curvature, therefore, we have two elements to consider: (1) the lateral curve and (2) the twisting of the vertebræ toward the convexity of the lateral curve (the rotation). The curved region in structural lateral curvature becomes stiff and loses much of its mobility, while distortion of the body outline, prominence of one hip, elevation of one shoulder and a lack of symmetry in various directions are the expression of the condition. The vertebræ are changed in shape, the ligaments and muscles on the convex side shortened, and a very decided resistance to the restoration of symmetry exists in the column and its attached structures. It is evident, therefore, that the same treatment is not required for the postural and structural cases, and the two varieties of treatment will be discussed separately.

TREATMENT OF POSTURAL SCOLIOSIS.

Defining postural scoliosis as faulty attitude, it is evident that the treatment consists in the substitution of a correct attitude for the faulty one. The prognosis is good for a complete recovery and efficient treatment is satisfactory. The correct attitude is to be obtained by restoring flexibility to the column if it is limited on one side, by exercises consisting of bending to one side, hanging, circumduction of the trunk and similar simple exercises. Having a column flexible in all directions to work on, the patient is then given what amounts to the "setting up drill" of the recruit in the American

army. In other words, he is taught to stand correctly by a series of exercises maintaining the erect position. The treatment lies within the range of any good teacher of gymnastics who will carry out the instructions of the surgeon.

The causes of failure are to be found in the fact that such children are generally in poor muscular condition and are often overworked at school or under unfavorable conditions at home. Having placed the patient under the most favorable conditions obtainable and having corrected errors of vision if they exist, having built up a short leg if it is present, having removed the entire weight of the clothing from the tips of the shoulders (where it ordinarily is carried by the child's waist), the patient should work on the exercises described for from half an hour to two hours a day for a period of some weeks. The exercises should not be pushed beyond the limit of fatigue, and after the active period has ceased the child should do home gymnastics and be kept under supervision for at least a year. The length of treatment, the period of the exercises and the extent to which they can be pushed will depend on the vigor of the child, as half-way measures are not likely to be successful and exercises done at home under the supervision of careless parents are less efficient than those given by persons trained in the art of gymnastics.

THE TREATMENT OF STRUCTURAL LATERAL CURVATURE.

The treatment of structural lateral curvature presents a much more serious and much less encouraging problem than the treatment of postural cases, for reasons which must be self-evident. It must be repeated that there are two elements to be attacked, the lateral curve and the rotation. The spine is stiff in the curved portions, the vertebræ are, to a certain extent, distorted, gravity is at work many hours of the day to continue the deformity, and measures must be vigorous, adequate and surgically sound to produce a permanently satisfactory result. Under good conditions and adequate treatment structural lateral curvature in young children of a moderate grade should be cured, in older children it should be permanently improved, and in adolescents and adults very great improvement in symmetry of a permanent character is to be obtained under efficient treatment.

The causes of failure lie in the unwillingness of the parents or the patient to submit to sufficiently long-continued and effective treatment to remedy a condition which, on the slightest consideration, can be seen to be one which is necessarily difficult and resistant.

The gymnastic treatment has fallen into great disrepute by its careless and indiscriminate use in cases of this class, and the treatment by braces or jackets alone, on the face of it, is unsurgical and inadequate. Merely to hold a stiff column in a position of deformity by a brace or jacket, as is so often done, is no treatment at all and is a detriment rather than a help, because it leads to atrophy of the muscles which are always trying to maintain as erect a position as possible.

The surgical treatment of structural lateral curvature, therefore, must consist of two divisions: First, to loosen up the stiffened parts of the spine to make an improved position possible, and, second, to hold the improved position when it has been rendered possible. These two elements are not sufficiently separated as a rule in treatment; they frequently go hand in hand and treatment must often be simultaneous for both, but it adds very much in a clear formulation of treatment to keep the two things perfectly separate. They will, therefore, be discussed separately.

A. TREATMENT TO LOOSEN UP THE SPINE AND MAKE AN IMPROVED POSITION POSSIBLE.

1. Gymnastics.—The object of free standing gymnastics is, by side bendings of the spine to increase the flexibility of the stiffened portions and to cultivate the muscles which aid in maintaining the erect position. The method is open to the objection that the force exerted is not sufficiently localized, but is distributed over the spine. It is essential that the pelvis should be fixed during such exercises as otherwise the pelvis is displaced and the movement becomes a general and not a local one. So far as lessening the curves in cases of even moderate severity goes, the treatment can not be regarded as wholly efficient and, although perhaps the commonest type of treatment in general use, it is not, as a rule, accompanied by satisfactory results in any but the slighter cases.

Such exercises should be simple and corrective in the strict sense; that is to say, an exercise which is of use should be seen to straighten the spine visibly. Complicated exercises are dangerous and unsurgical. This part of the work lies within the capabilities of any competent, properly educated teacher of gymnastics who will observe the case carefully and will be satisfied to give only exercises which can be seen to secure an improved position. Such work to obtain results must be given by a competent gymnast for a period of from one to three hours a day, according to the vigor of the patient, and must be continued under personal supervision for a period of some weeks to obtain satisfactory results. After this exercises at home can be substituted for part of the personal work.

2. Gymnastics Given in Apparatus. — By means of apparatus constructed on the pendulum principle, gymnastic exercises can be very much more correctly localized and the work of loosening the spine and of strengthening the desired muscles can go hand in hand. This method, which is in general use in Germany, has never found a foothold in this country on account of the complicated and expensive apparatus. It is suited to all cases, except the severest, and used for a proper period of time is capable of producing most excellent results.

3. Passive Stretching of the Spine.—Passive stretching of the spine with a view to restoring mobility and making an improved position possible in the curved portion is generally secured by hanging by the arms and by traction on the head by means of a Sayre sling. A pull in the length of the vertebral column is not, however, an economical use of force. The hardest way to straighten a bent stick is to pull the two ends apart, and the easiest way is to press the point of the curve against the knee, while the two ends of the stick are held with the hands. The advantage of traction made on the head in this way lies in the fact that the corrective force is distributed through the whole column.

Apparatus for the purpose has been devised and is known as the Weigel-Hoffa frame in which the patient is suspended by the head, while pads are run in from the sides of the frame, making lateral pressure in various directions. Here, again, the use of force is not economical, as traction in the length of the spine tends to stiffen it against side pressure. In other words, more displacement is possible in a slack than in a stretched spine. Some experiments were made on the cadaver,

with a normal spine, where a side pull with twenty-five pounds was made, the pelvis and shoulders being fixed. A traction force of seventy-five pounds was put on the head and a side pull of twenty-five pounds made. Under these conditions it was possible to secure only half as much side displacement of the spine as when traction was not used. A confirmatory experiment was made with a healthy boy of 15, using seventy-five pounds of head traction and fifteen pounds of side pull, and the result was the same.

Traction on the head is, therefore, not an economical application of corrective force, and when traction is used, lateral corrective force displaces the spine less than when traction is not used.

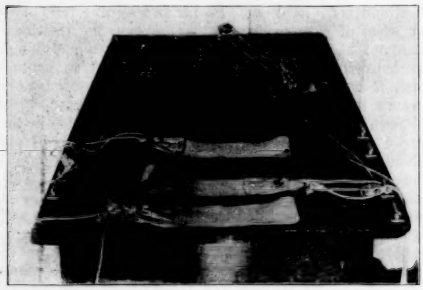

Fig. 1.—Stretching board with loops, ready for application.

Stretching of the lateral curve of the spine is, therefore, to be obtained most economically by pressure on the slack spine, which is most easily secured by having the patient lie prone, and the corrective force should be divided into two elements, the force to correct the rotation and the force to correct the side deviation. A simple apparatus for this is as follows (Fig. 1):

Fig. 2.—Stretching board with loops applied to patient.

The patient lies face downward, with the knees flexed, on a board three feet wide by four feet long. Assuming the case to be of a right dorsal curve, a broad canvas strap is passed around the left upper thorax, over and under the patient, and fastened to a cleat on the right side of the board. This furnishes a point of pressure to the left against the upper thorax at the level of the axilla. A broad canvas strap is then passed around the pelvis of the patient above and below and is fastened to a cleat at the right side of the board. This furnishes a point of pressure to the left at the level of the pelvis. A broad canvas strap is then passed around the thorax at the level of the greatest point of curve; it passes above and below the thorax and its upper end is fastened to a cleat at the left side of the board (Fig. 2). Its lower end is fastened by means of a string into a compound pulley attached to a cleat at the left side of the board. By means of this pulley any reasonable degree of force may be exerted against the right side of the thorax, pulling it to the left and

Fig. 3.—Machine for intermittent correction applied to patient.

at the same time that it pulls it tends to reduce the rotation from the fact that its upper end is fastened and its lower end moving toward the pulley.

A better and much more efficient appliance has been made by Dr. Z. B. Adams of Boston.

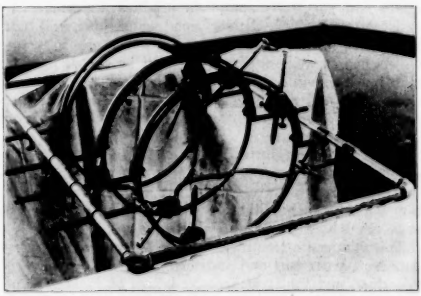

Fig. 4.—Apparatus for forcible correction by plaster jackets.

In this a patient lies prone, with the knees flexed, on a table which is split transversely into five parts. The lower one, on which the pelvis rests, is furnished with two sliding wooden horns which hold the pelvis firm. The next three pieces are provided with a pad sliding in from the side and a pad coming down from the top. These three movable pieces slide from side to side and also rotate on a gas pipe running the length of the table longitudinally. The patient is placed in the apparatus, the pads are adjusted to the side and back of the loin or thorax, or both, and by side pressure and a twisting of each arm, both rotation and lateral deviation are corrected separately at each level. In this way it is possible to correct both lateral deviation and

rotation at one, two, or three levels for the purposes of stretching the spine by directly applied pressure. The top part of the table farthest away from the pelvis of the patient is fixed, and on it rest the arms and head.

The patients are stretched daily in this apparatus and left in the corrected position for as long a time as can be borne comfortably, generally from fifteen minutes to half an hour.

4. Stretching by Means of Plaster-of-Paris Jackets (Forcible Correction).—In severe cases of structural lateral curvature no means of treatment is so efficient as continuous stretching by means of plaster jackets applied under force. This method is spoken of as "forcible correction." Such jackets are applied in the hope of stretching the contracted structure and of inducing an improvement in the curve. By virtue of their being at work day and night they accomplish much better results than are to be obtained in any other way.

Corrective jackets should be applied to the patients prone, and preferably with the legs flexed, as this diminishes the physiologic curves of the spine and further simplifies the problem. With a patient thus lying prone,

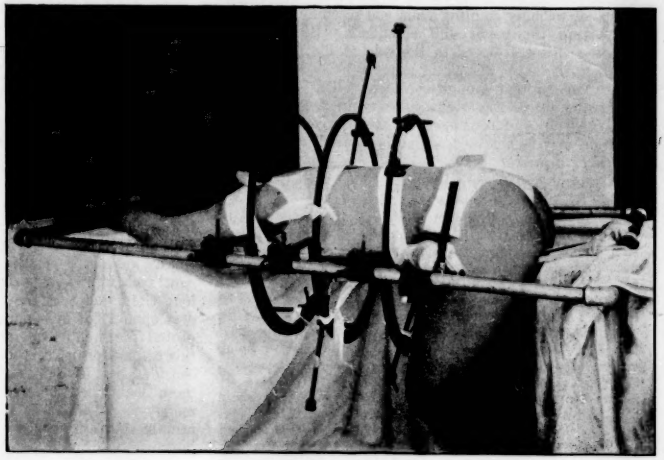

Fig. 5.—Apparatus for forcible correction by plaster jackets applied.

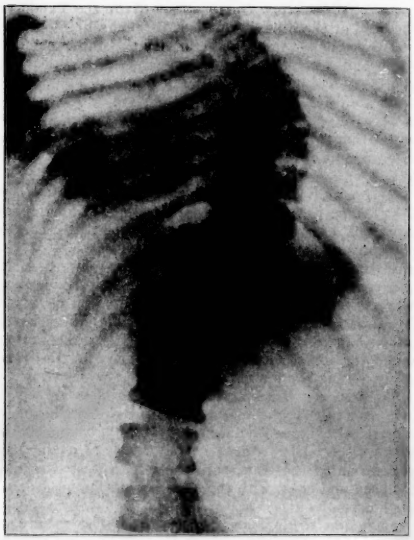

Fig. 6.—Radiogram of patient 17 years old lying on the back before application of jacket.

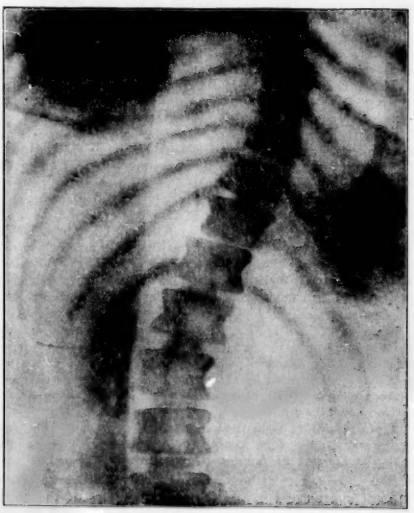

Fig. 7.—Radiogram of same patient taken after application of plaster jacket through windows cut in front and back of jacket.

They have been applied, as a rule, to the patients suspended by the head, but the reasons already stated as to the mechanics of this position apply here also.

the spine is in the most favorable condition for side correction both as regards side deviation and rotation, and by an intelligent application of force to correct

both of these elements at different levels, in the case of compound curves, great improvement is to be obtained. In this improved position the jacket is applied.

A correct application of this method is to be found by having the patient lie prone in a gas-pipe frame on two straps of webbing running from end to end, cross-straps supporting the pelvis and shoulders. By means of webbing straps attached to the side of the frame, in a right dorsal curve, one going around the left side of the pelvis and another around the left upper thorax, while a third pulls on the right side of the thorax against these as points of resistance, great improvement in the position may be obtained, which is secured by the application of a plaster jacket.

A thoroughly efficient apparatus has been devised by Dr. Z. B. Adams as follows:

The apparatus consists of a heavy gas-pipe frame three by four feet. The patient lies face downward on two webbing strips running from end to end of the frame with the legs flexed. Near the bottom of the frame is an adjustable cross-bar bent to fit into the flexure between the thigh and the pelvis on which the patient rests the lower part of the body. Sliding on this bar are two arms, which slide in and clamp down on the buttocks, holding the pelvis steady on the cross-bar. This bar is movable from side to side in order to induce or correct curvature in the lumbar region when necessary. There are three vertical transverse rings two feet in diameter fastened to pieces on the sides of the frame so that they can be moved to any desired point along the frame. These rings are also movable from side to side and by an independent movement they can also be rotated through a half circle. Any one of these movements can be checked at any point by turning a screw. The shoulders are held by a pair of axillary straps fastened together by a strap across the chest in front. These straps are suspended from the ring nearest to the top of the frame and can be made to hold the shoulders in any desired degree of twist by a rotation of the ring (Fig. 3).

Each ring is provided with two long rods at the two poles of the ring. These rods are adjustable on the ring and can be set at any desired angle to it. They can be pushed up or down and are controlled by a ratchet. By rotating the ring and adjusting the angle of the rods they can be made to press down or up on any part of the back or chest.

For the application of the jacket the patient lies on the face on the two webbing strips, the lower part of the trunk resting on the cross rod and the bars clamping the buttocks; the feet rest on the floor and the arms are extended above the head. The rings are then adjusted at the two levels where it is desired to make correction (Fig. 4). For side correction a bandage is fastened to one side of the ring, carried around the patient's side over a heavy pad of felt, and back to the ring. The same is done to the other ring at the other level where side correction is desired, while the top ring controls the shoulders. The rings are then pulled to one side, the bandages around the patient tighten, and any endurable degree of side correction obtained.

When the side correction is made the ring is rotated till the rods are opposite the points where it is desired to correct rotation. They are then pushed down on to the patient, their points being protected by sheet-iron pads two by three inches, which are covered with heavy felt. These pads are incorporated in the jacket (Fig. 5).

A plaster jacket is applied to the patient held in this way. It is easy to see that the method is perfectly definite and that the amount of force at the operator's disposal is very great.

That a practical gain in the curved part of the spine may be secured by this method is demonstrated by the two *x*-rays shown in the illustrations (Fig. 6). The patient was a girl of 17, with a severe right dorsal curve, who was extremely rigid and had never been treated. The first *x*-ray was taken with the patient lying on the back. A corrective jacket was applied in the Adams apparatus, the front and back of the jacket were cut away to permit another *x*-ray, and the improvement in position is evident (Fig. 7).

It seems reasonable to hope that the maintenance of such an improved position may be expected in time to produce a change in the shape of the vertebræ, and such jackets are worn for a period of from one to three weeks. They are then removed and others applied so long as it seems possible to obtain any further correction (Figs. 8 and 10). This short period is adopted in order to prevent as much as possible the atrophy of the muscles incident to the fixation of the trunk.

The treatment after removal of these jackets will be considered in the next section.

B. TREATMENT TO RETAIN THE IMPROVED POSITION.

Although it may be possible to secure a very great improvement in position by means of the measures described, it has been demonstrated clinically that such results are not permanent, and that to become permanent such improved position must be maintained for a long time, and that the ultimate cure must rest in the development of the muscles which maintain the improved position. The intelligent use of gymnastics in this connection is, therefore, of great importance. This consideration of gymnastics is entirely independent of those mentioned before, where they were spoken of merely as measures to secure flexibility. In this connection they are spoken of as measures to maintain the improved position.

It is impossible to go into the individual exercises, but for practical consideration they may be divided into four types:

1. Self-Correction Gymnastics.—With the hands on the head or the hips, the patient lifts herself into a corrected position, which she maintains as long as possible, while the arms are taken away from the supporting point. A second type of this exercise is to be found in the so-called "Hoffa self-correction," in which the patient with a right dorsal curve places the right hand on the thorax and the left hand on the left hip, and by a side pressure presses the right side of the thorax to the left.

2. Gymnastics for the Contraction of the Muscles on the Convex Side of the Lateral Curve.—A distinctive group of exercises intended to maintain the correct position consists in the repeated contraction of the muscles on the convex side of the lateral curve. Such exercises consist of side bendings against resistance and active exercises which are as heavy as they can be made. In a left lumbar curve, for instance, the patient hangs by the hands from a bar and lifts both legs sideways to the left, contracting the left lumbar muscles and straightening the curve.

3. Backward Bending Gymnastics.—Backward bendings have been found to have a beneficial effect in maintaining the corrected position. Simple symmetrical backward bendings can be carried out by having the patient lie on the floor, with the feet held, and raising the head and chest with the arms behind the head or on the hips.

4. Symmetrical Heavy Gymnastics.—The raising of heavy bars and weights calling for simultaneous muscular contraction of the two sides is distinctly beneficial in maintaining an improved position of the spine, and, of all the exercises mentioned, is perhaps the safest in inexperienced hands. Dumb bells of from five to ten or twenty to thirty pounds and bars weighing from ten

to thirty pounds. Examples of the exercises are as follows: A heavy bell is taken from the floor and raised above the head alternately by each arm, a heavy bar is raised above the head with both arms, and the patient should reach up and look up at the end of each movement, raising the bar to the highest possible point. The patient lies on the back on the floor and raises a bar from the level of the chest to the full extent of the extended arms. In such exercises the patient should be pushed to the limit of fatigue.

Although the exercises have been divided sharply into four groups, it must be evident that combinations of these groups are likely to be of value, and here again only exercises which can be seen to be corrective should be given. Such work to accomplish results must be carried on from two to four hours a day for a period of at least six months following forcible correction.

The present discredit of gymnastic retentive treatment is due to its use in too small dosage and to a failure to appreciate that a problem so grave as the maintenance of an upright position in a spine, which tends to curve, is to be obtained only by a high degree of muscular development and that this can not be obtained in exercise periods of half an hour, given three times a week, but that treatment must be vigorous and long continued.

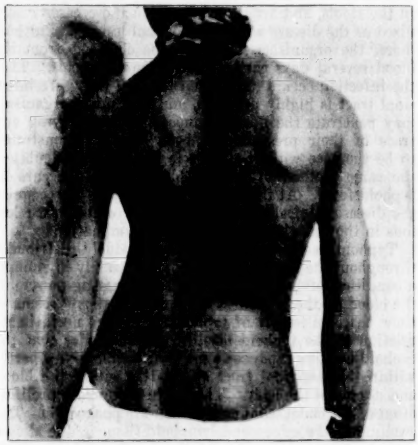

Fig. 8.—Patient of whom the radlograms were taken before treatment.

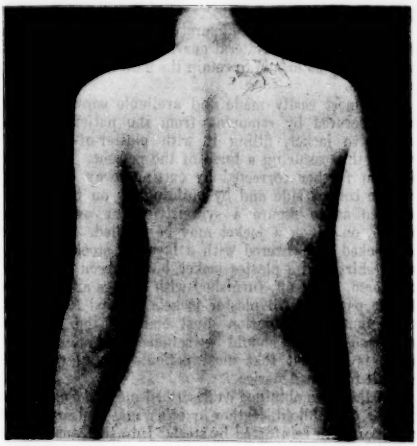

Fig. 10.—Same patient after one corrective jacket.

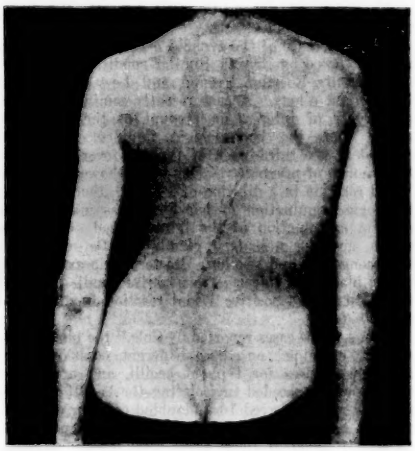

Fig. 9.—Patient 17 years old, never previously treated, before treatment.

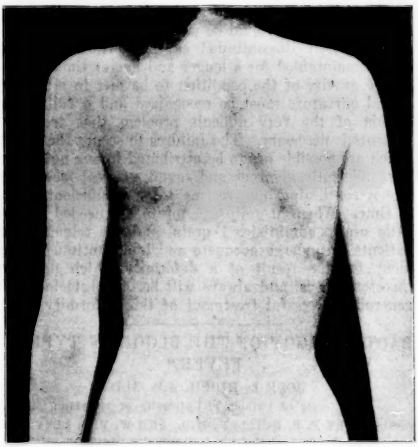

Fig. 11.—Same patient after two jackets. Whole interval three weeks.

5. Retention by Apparatus.—After forcible correction either by intermittent means as described or after the removal of jackets furnishing continuous correction, it is desirable that some form of retentive apparatus should be worn for some months (at least, to maintain the corrected position obtained) until the muscles are strong enough to enable the apparatus to be dispensed with.

Braces, as corrective apparatus, have no place in the treatment of severe lateral curvature and should be regarded only as means to retain the gain secured by other measures.

The most easily made and available corset is to be manufactured by removing from the patient the last corrective jacket, filling it with plaster-of-Paris and water, thus securing a torso of the patient. This torso is then further corrected by cutting away the plaster on the convex side and by building up on the concave side so as to secure a symmetrical or overcorrected model, on which a jacket may be applied. It is then shellacked and covered with a layer of stockinet or an undershirt, and a plaster jacket, having been applied on the torso, is cut off, furnished with lacings and supplied to the patient. All plaster jackets applied for forcible correction and retention must embrace the shoulders and even the head should be included, but the disfigurement is so great that most patients are unwilling to submit to it in America.

On the torso obtained as described may be constructed jackets of celluloid, leather or other material, or corsets made of cloth reinforced by steel. Into the construction of these more complicated forms of apparatus and braces there is no space to enter here. Any brace which maintains the corrected position fulfills the requirement. After a forcible correction it is generally necessary that a jacket should be worn from one to two years and gradually discontinued as the corrected position can be maintained for a longer and longer time.

The gravity of the condition to be met in structural lateral curvature must be recognized and a full appreciation of the very difficult problem that treatment presents is necessary. The failures to secure the results which are possible are to be attributed to our not applying sufficiently vigorous and sound surgical means and to not continuing our treatment for a sufficient period of time. When 20 grains of quinin are needed it is of little use to administer 1 grain, and the reluctance of patients to undergo adequate and long-continued treatment for the result of a deformity which does not threaten life is, and always will be, an obstacle to the generally successful treatment of this deformity.

BACTERIOLOGY OF THE BLOOD IN TYPHOID FEVER.*

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The views regarding the nature of typhoid fever have undergone considerable changes in recent years. While this was formerly considered as an intestinal disease, or as a disease with especial localization in the intestinal tract, the modern conception regards it as a true septicemia. Instead of local lesions in the intestines with subsequent blood infection, the organisms of the disease are first conveyed to the general circulation and the intestinal lesions, when present, are to be regarded as the secondary changes.

His,[1] in his studies of typhoid stools, has demonstrated the fact that in most cases the bacilli appear late in the stools, and are often absent in those cases recognized as the disease without intestinal lesions. Furthermore, the organisms may often be obtained from the blood several days earlier than from the stools. That the infection occurs most often through the gastrointestinal tract is highly probable, and that micro-organisms may penetrate the normal mucosa without leaving any trace of their presence has been amply demonstrated to be the case with the tubercle bacillus and doubtless the same method of general blood invasion occurs in typhoid fever. At the time that we are able to recognize the disease clinically there are usually well-marked lesions in the intestinal and mesenteric lymphatics.

Typhoid bacilli are usually found widely distributed throughout the tissues after death and usually in clumps, a condition probably due to the agglutinating powers of the blood on the bacilli. The work of Mallory[2] seems to show that the lesions of typhoid fever bear no intimate relation to the typhoid bacilli. He concludes that the typhoid bacillus produces a mild, diffusible toxin, partly within the intestinal tract and partly within the blood and organs of the body. This toxin produces a proliferation of the endothelial cells, which are phagocytic. The swelling of the spleen and lymphoid tissue is due almost entirely to the formation of these cells. The necrosis of Peyer's patches is due to the occlusion of the veins and capillaries by thrombi, which owe their origin to degeneration of phagocytic cells beneath the lining endothelium of the vessels.

The occurrence of the typhoid organisms in the fetus was first noted by Ernst.[3] Similar conditions have been described by Eberth,[4] Freund and Levy, Richardson, Lynch[5] and others. A case recently coming under my notice was of interest on account of the pathologic, rather than the bacteriologic findings. A woman aborted in the third week of typhoid fever during the fifth month of pregnancy. Her blood showed a positive Widal reaction in a dilution of 1 to 100, though no bacteriologic examination of her blood was made. Postmortem examination of the fetus showed an enlarged spleen, and the mesenteric glands and Peyer's patches were congested and swollen. Bacteriologic examination of the blood and spleen gave negative results, although the blood gave a positive Widal reaction in dilution of 1 to 50.

In one of the cases reported by Cole,[2?] the blood of the mother, examined on three different occasions, gave negative cultures for typhoid bacilli, and after abortion Lynch[5] succeeded in isolating the bacilli from the fetus. Lynch collected 16 undoubted cases in which the typhoid bacilli were isolated from the organs of the fetus. In none of these cases were intestinal lesions found. Probably the cause of the infection of the fetus in these cases is the associated hemorrhagic infarcts of the placenta, which Lynch found in his case.

The occurrence of the *Bacillus typhosus* in the urine of typhoid patients has been demonstrated by various

* From the Pathologic Laboratory of the University of Maryland. Conducted under the Charles Frick Fund.

* Read before the Medical and Chirugical Faculty of Maryland, March 2, 1906.

1. His: Med. News, May 11, 1900.
2. Mallory: Jour. Exp. Med., 1898, vol. iii, p. 611.
3. Ernst: Beitr. z. Path. Anat., 1890, vol. viii.
4. Eberth: Forts. d. Med., 1899, vol. ii.
5. Lynch: Johns Hopkins Hosp. Reports, 1902, vol. x, Nos. 3, 4, 5.

observers in a large number of cases. In 1881 Bouchard claims to have isolated the organism from the urine in 50 per cent. of cases. In 1890 Neuman[6] isolated the bacillus in 11 out of 48 cases. Horton Smith[7] found them in 3 out of 7 cases which he investigated, and Richardson[8] in 23 out of 104 cases. Gwynn[9] has found as many as 50,000,000 typhoid bacilli in 1 c.c. of urine. In this connection, it is interesting to note that the organism may persist in the urine for a long time after the attack of typhoid fever; Young's[10] case showed the persistence of the organism in the urine for 7 years after the attack of typhoid fever and in Houston's[11] case it remained for 2 years.

The occurrence of the bacilli in the urine in from 25 to 30 per cent. only of the cases and the fact that it has seldom been found before the end of the second week, offers but little aid to the clinical diagnosis of the disease; but its frequent presence and its persistence in the urine is of great practical import in showing the danger of infection from this source. Bacilli of typhoid fever have been isolated from the stools in many cases, and while the method of His[12] and the more recent one of v. Drigalski and Conradi[13] are less complicated than previous methods, yet neither are practical on account of the difficulty of isolating the bacilli in pure cultures.

Isolation of the organism from the spleen *intra vitam* has not proved feasible, even though several investigators have succeeded in so doing. The dangers from hemorrhage from the enlarged and softened spleen is not a negligible quantity. The bacteriologic examination of the rose spots has been more successful, although, as with the urine, the bacilli are obtained at a time when it is practically useless for a clinical diagnosis, as the symptom complex is fairly well established at the time the rose spots appear.

Neuhaus[14] isolated the organism from the rose spots in 9 out of 15 cases. Neufeld[15] cultivated the bacilli from the spots in 13 out of 14 cases. He made incisions into the spots and transferred the blood with the tissue scrapings into bouillon. Curshman[16] made an examination in 20 cases, with positive results in 14 cases. Richardson[17] cultivated the organism in 5 out of 6 cases from the spots. Neufeld assumed that the bacilli found lodgment in the skin outside of the blood and were so protected from the bactericidal action of the blood; accordingly Richardson[17] modified Neufeld's technic by freezing the spots with ethylchlorid and so driving all the blood out of the skin. The skin having been frozen, a small cross incision was made over the spot, the substance of which was immediately curetted out and transferred to a tube of bouillon. In both Neufeld's[15] and Richardson's[17] studies it was possible to obtain the typhoid bacilli several days before the Widal reaction was positive. Neufeld's series 7 out of 8 cases, the diagnosis made from the rose spots was 6 days ahead of that made by the Widal reaction. In all of Richardson's cases the blood cultures were ahead of the Widal.

E. Frankel,[18] by excising the spots, has been able to demonstrate the bacilli in sections, and finds them chiefly outside the blood capillaries in the small interstices of connective tissue.

Although the earliest attempts to isolate the organism from the circulating blood were negative, as early as 1884, Gaffky[19] called attention to the probability of the invasion of the blood by the typhoid bacillus, and in the following years Frankel and Simmonds[20] were successful in isolating the organism in 1 out of 6 cases. The earlier results were very much at variance, some observers claiming to be able to isolate the organism in a large number of cases, while others constantly had negative results. The work of Stern,[21] in calling attention to the germicidal action of the blood, had considerable influence on later investigations, and, although, Thiemach[22] was able to isolate the organism in but 1 out of 7 typhoid patients, he recognized the fact that the cause of his failure was in not making sufficient dilutions of the blood. Kuhnau[23] was able to obtain the organism in 11 out of 41 cases. He used a large quantity of blood, about 10 cc. and diluted it in large quantities of agar, and made plates. Schottmüller[24] in an examination of 220 cases, from 1899 to 1902, found the typhoid bacillus in the circulating blood in 182 cases, 827 per cent. He prefers agar to bouillon, as the colonies are fixed and thereby readily isolated. He collects about 20 cc. of blood from the arm, and adds from 2 to 3 c.c. of blood to 6 c.c. of agar and then pours the plates; he has found from 5 to 2,000 colonies, per 100 c.c. blood.

Auerbach and Unger[25] report a study of 10 cases of typhoid fever, in which 7 gave positive results. The rather large percentage of positive findings is remarkable, considering the fact that they used very small quantities of blood, obtaining a few drops from the finger tips and the lobe of the ear. The majority of workers who have followed this plan have failed to isolate the organisms, as we did ourselves in the first few cases we studied and which we have not included in our statistics. Castellini[26] used large quantities of bouillon, which he inoculated with from 10 to 40 drops of blood, which was obtained from the median vein of the arm; each flask contained about 300 c.c. of bouillon, so that the blood was used in large quantities and sufficiently diluted to lessen the germicidal action. He isolated the *Bacillus typhosus* in 11 out of 14 cases.

In this country, the earliest reports are by Cole,[27] who was able to obtain the organism in 11 out of 15 cases examined. He also made use of large quantities of blood with large dilutions in bouillon. Hewlett[28] found the organism in 20 out of 24 cases, 83 per cent. Kerr and Harris[29] reported 56 cases, 31 of which were positive and 26 negative. Courmant and Lesieur[30] found the bacillus constantly present in all cases examined by them. Warfield[31] found the specific organisms in 33 out of 43 cases examined. Coleman and Buxton[32]

6. Neuman: Berl. klin. Wochft., March 15, 1890.
7. Smith: Brit. Med. Jour., Feb. 13, 1897.
8. Richardson: Jour. Exp. Med., 1898, vol. iii, p. 349, 1899, vol iv, p. 19.
9. Gwynn: Phila. Med. Jour., March 3, 1900.
10. Young: Johns Hopkins Hosp. Reports, 1900, vol. viii, p. 401.
11. Houston: Brit. Med. Jour., Jan. 14, 1899.
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in a study of 60 cases, have obtained the organism in 34. Trappe[33] in 38 cases had positive results in 25. He attributes his rather low percentage of positive findings to the fact that many of his cases were examined late in the course of the disease, at a time when the organisms had probably disappeared from the blood. Duffy[34] reports his examination of 88 cases with especial reference to the relationship of the temperature to the presence of the organism. In 56 cases in which the temperature was above 102 F. the bacilli were present in the blood in every case, and in 23 cases in which the temperature was 100 or 101 F. the bacilli were cultivated from the blood in 10 cases, or 43 per cent.

Our investigations consist of a study of the blood in 100 cases of typhoid fever. All the cases were from the wards of the University of Maryland Hospital, and as is the case with such patients, it is often impossible to obtain a very exact history as to the beginning of the attack; still in the large majority of cases we think the day of the disease as given is fairly accurate. All of the cases were clinically typhoid fever, although as will be stated, some ran a very mild course.

The technic employed was practically that given by Cole. The skin over the anterior surface of the arm at the bend of the elbow was thoroughly cleansed with soap and hot water, then washed with alcohol and ether, and kept wrapped in a hot towel soaked in bichlorid solution for several hours. A bandage is fixed about the arm just below the shoulder, so as to make the veins stand out prominently. The operation consists in drawing 10 c.c. of blood from one of the superficial veins of the arm. An ordinary hypodermic needle with a syringe holding 10 c.c. is used; needless to say, all aseptic precautions must be used. The 10 c.c. of blood obtained is then divided into four flasks, each flask containing 300 c.c. bouillon. The flasks are then placed in the thermostat and allowed to incubate from 24 to 36 hours.

SUMMARY OF 100 CASES OF TYPHOID FEVER.

Case	Sex.	Age.	Day of Disease.	Widal Reaction.	Rose Spots	Result of blood examination.	Remarks.
1.	M.	24	16	+	+	+	
2.	M.	26	17	+	+	+	
3.	M.	32	18	+	+	+	
4.	F.	18	24	+	—	—	
5.	F.	24	8	—	+	+	
6.	M.	42	10	+	+	+	
7.	M.	19	9	+	+	+	
8.	M.	18	4	—	—	+	
9.	M.	26	11	—	+	+	
10.	M.	25	14	+	+	+	Mild Temp. at no time over 102 F.
11.	F.	22	12	+	+	+	
12.	M.	16	20	+	—	—	
13.	F.	32	16	+	+	+	Delirium. Temp. 105 F. Severe attack.
14.	F.	27	4	—	—	—	
15.	M.	24	8	—	+	+	
16.	M.	26	7	—	+	+	
17.	M.	19	16	+	+	—	
18.	M.	34	14	+	+	+	Mild attack.
19.	M.	26	22	+	—	—	
20.	M.	40	15	+	+	—	
21.	F.	30	21	+	—	—	
22.	F.	24	5	—	—	+	
23.	M.	18	10	‡	+	—	
24.	M.	19	7	—	—	—	
25.	M.	27	11	‡	+	—	
26.	F.	32	14	+	+	+	
27.	M.	30	42	+	—	+	Relapse. Culture on 3d day of relapse.
28.	M.	22	26	+	—	—	
29.	F.	40	14	+	+	+	
30.	F.	46	10	—	+	+	
31.	F.	27	11	‡	+	+	
32.	M.	26	8	‡	+	+	

33. Trappe: Inaug. Dissert. Breslau, 1904.
34. Duffy: THE JOURNAL A. M. A., Nov. 15, 1905.

SUMMARY OF 100 CASES OF TYPHOID FEVER—Continued.

Case.	Sex.	Age.	Day of Disease.	Widal Reaction.	Rose Spots.	Result of Blood Examination.	Remarks.
33.	M.	32	6	—	—	+	
34.	M.	18	7	‡	—	—	
35.	M.	20	9	+	+	+	
36.	M.	22	14	+	+	+	Severe attack from onset. Died.
37.	M.	19	10	—	+	—	
38.	M.	26	27	—	—	—	Relapse. Culture positive on 35th day. Second day of relapse.
39.	F.	34	14	+	+	+	
40.	F.	37	19	+	—	+	
41.	M.	26	8	+	+	+	
42.	F.	24	21	+	—	+	
43.	F.	18	14	—	+	+	
44.	M.	20	14	+	+	+	Mild attack.
45.	M.	19	9	+	+	+	
46.	M.	26	4	—	—	+	
47.	M.	37	16	‡	+	+	
48.	M.	42	8	+	—	+	
49.	M.	26	40	+	—	+	Relapse. Culture positive fourth day.
50.	M.	29	24	+	—	—	Severe attack. Recovery.
51.	F.	21	18	+	+	+	
52.	F.	19	13	—	+	+	
53.	M.	23	14	+	+	—	
54.	F.	24	12	+	+	+	
55.	F.	38	8	+	—	+	
56.	M.	35	10	+	+	+	
57.	M.	24	9	+	+	+	
58.	M.	18	5	—	—	—	
59.	F.	20	7	‡	—	+	
60.	M.	32	18	+	+	+	Mild.
61.	M.	28	20	+	—	+	
62.	F.	39	16	+	+	+	
63.	M.	36	18	+	+	+	
64.	M.	28	35	+	—	+	
65.	M.	37	14	+	+	+	
66.	M.	21	26	+	—	—	
67.	M.	26	17	+	+	—	
68.	M.	48	18	+	+	+	
69.	M.	26	7-14	+	+	—	Delirium. Extreme tympanites. Died. Autopsy.
70.	M.	29	14	+	+	+	
71.	M.	17	13	+	+	+	
72.	F.	26	7	—	+	+	
73.	F.	18	8	+	+	+	
74.	M.	15	10	+	+	+	
75.	F.	22	14	+	+	+	
76.	F.	26	28	+	—	+	
77.	F.	27	15	+	+	+	
78.	M.	24	11	‡	+	+	
79.	M.	51	14	+	+	+	
80.	M.	26	20	+	+	+	Severe hemorrhages. Died. Autopsy.
81.	M.	27	5	‡	—	+	
82.	F.	18	8	—	+	+	
83.	M.	21	10	+	+	+	
84.	M.	32	13	+	+	+	
85.	F.	36	7	—	—	+	
86.	F.	18	9	—	+	+	
87.	M.	29	13	+	+	+	
88.	M.	32	12	+	+	+	
89.	M.	37	10	+	+	—	Severe attack. Hemorrhages. Recovery.
90.	F.	28	8	—	—	+	
91.	F.	18	21	+	+	+	
92.	M.	42	16	+	+	+	
93.	M.	36	6	—	—	+	
94.	M.	35	7	+	—	+	
95.	M.	27	9	+	+	+	
96.	M.	18	12	+	+	+	
97.	M.	36	14	+	+	+	
98.	F.	28	11	+	+	+	
99.	M.	26	10	+	+	+	
100.	M.	32	6	—	—	+	

‡ Suggestive.

In our work the identity of the typhoid bacillus was, in many cases, made by cultures and agglutination, but in every case the crucial test was the positive agglutination of the bacilli in a dilution of 1 to 50 within one hour with known human typhoid serum.

A study of our 100 cases shows that the typhoid bacilli were found present in the circulating blood in 78 cases and absent in 22 cases, and as to the time of the disease, were distributed as follows:

First week—16 cases, 12 positive, 75 per cent.
Second week—50 cases, 43 positive, 86 per cent.

Third week—24 cases, 19 positive, 79.3 per cent.
Fourth week—7 cases, 1 positive, 14.3 per cent.
Relapses, 4 cases, 4 positive, 100 per cent.

As to the stage of the disease in which the bacilli are most apt to be found there seems to be general accord. Our largest number of positive findings were in the second week of the disease, a time when the bacilli are probably present in largest numbers. Our positive results in the first and third week are practically the same. After the third week the positive findings are greatly reduced and in the majority of cases we believe they are absent after the twenty-first day. In an analysis of 604 cases collected from the literature by Coleman and Buxton they find 93 per cent. of positive cases in the first week, 76 per cent. in the second week, 56.5 per cent. in the third week and 32 per cent. in the fourth week.

Our earliest date of positive findings in the original attack was on the fourth day; there were two cases on the fifth day. The latest day on which bacilli were present, exclusive of relapse, was the twenty-eighth. Schottmüller's earliest finding was on the second day and the latest on the forty-second day. Courmant found the organisms present usually as early as the fifth day and present until the end of the third week. Cole's earliest positive result was on the sixth day and the latest on the twenty-seventh day; Hewlett found the bacilli in one case on the third day.

The number of relapses in our series is small, though important in showing the relationship to the original attack. A relapse is undoubtedly a reinfection of the blood with the bacilli. All the relapses gave positive results, one on the second day, one on the third day and two on the fifth day. One of the cases (Case 38) gave negative results in the original attack on the twenty-seventh day, and on the thirty-fifth day of the disease (and the second day of relapse) showed the presence of typhoid organisms. Just why this reinvasion of the blood should occur we are unable to say.

We may conclude, therefore, that the organism is present in a large majority, if not all cases of typhoid fever in the blood, early in the attack and that it disappears by the end of the third week, or soon thereafter, and that a relapse is a second infection, associated with the reinvasion of the blood by the organism. We have not been able to confirm the statement of Kuhnau, that the organisms are found only in the stage of hyperpyrexia, or that of Duffy, who found them present in every case where the temperature was above 102 F. While it is true that the majority of our positive cases occurred in the second and third week, when the temperature was high, we encountered several cases of hyperpyrexia, temperature 104 F., which were negative after several examinations. On the other hand, several mild cases, in which the temperature at no time was above 102 F., gave positive results. While Widal was able to find the organisms present in severe cases only, the majority of authorities have been able to find no relationship between the severity of the attack and the presence of the bacilli.

Case 69 of our series, although of great severity from the onset, death following perforation, failed to show the organisms at any time, although cultures were made on the seventh and fourteenth days. Cases 53 and 89 were likewise negative, the latter case being associated with great tympanites and repeated intestinal hemorrhages. Cases 13, 36 and 80 were also classified as severe infections and gave positive results. Cases 10, 18, 44 and 60 were very mild and showed organisms early in the fever, while cases 34 and 53, of moderate severity, failed to show any organisms.

In 23 of our cases the Widal reaction was negative or merely suggestive at the time the bacilli were obtained. Rose spots were present in 56 cases, and absent in 22 cases at the time of positive findings. The value of a bacteriologic examination as a means of diagnosis in certain obscure cases of typhoid fever can not be questioned. If the bacteriologic examination is positive, the diagnosis is assured. While the Widal reaction is more easily carried out, it is often misleading, as it is occasionally absent or does not appear until late in the attack of typhoid, and is occasionally found in those very diseases which clinically resemble typhoid fever. We have recently encountered 3 cases of acute miliary tuberculosis all of which closely simulated typhoid fever, one of which gave a positive Widal reaction, another a suggestive reaction; negative findings in the bacteriologic examination of the blood was a valuable point in the differential diagnosis.

CONCLUSIONS.

From these studies we conclude:

1. That the *Bacillus typhosus* is present in the circulating blood in every case of typhoid fever at some time during its course.
2. The bacilli invade the blood very early in the disease.
3. The bacilli usually disappear from the blood by the end of the third week.
4. Relapse is associated with the reinvasion of the blood by the organism.
5. The bacteriologic examination of the blood is a valuable adjunct in the diagnosis of obscure cases of typhoid fever.

ATROPIN AND STRYCHNIN COMBINED, A SPECIFIC FOR SEASICKNESS.*

BRIG.-GEN. ALFRED C. GIRARD, U. S. A. RETIRED.
Late Assistant Surgeon General, U. S. A.
SAN FRANCISCO.

It is not the intention of this report to discuss the pathology or symptoms of seasickness, but, since the subject has been taken up by this Congress, to bring again before the profession a remedy which I advocated as long ago as 1888 and again in my "Letters from Europe," published in 1893 in THE JOURNAL of the American Medical Association, to-wit, the combination of atropia and strychnia.

Since then I have privately advised many physicians of my observations and while on duty as Medical Superintendent of the Army Transport Service in San Francisco induced many of the surgeons of the transports to give the remedy a trial. I used the treatment on myself experimentally and gave it to many persons on various ocean trips.

At first I used atropin and strychnin in conjunction with caffein, but after many trials abandoned the latter, because, given hypodermically (which is the safest and most expeditious method), it occasionally gave rise to local inflammation.

For many years I had believed that I was the original discoverer of this treatment, but it seems that other physicians have used it at times independent of my investigations, and I, therefore, do not pretend to absolute originality, but I believe this report represents the views of many observers working under my instructions under various circumstances and more than any individual views will establish the value of the treatment.

* Report presented to the International Medical Congress at Lisbon, April 17, 1906.

My observations show that in almost every instance a hypodermic injection of 1/120 of a grain of atropin sulphate (0.0005 mg.) with 1/60 of a grain of strychnin sulphate (0.001 mg.) is readily borne by adults and, as a rule, causes no disagreeable sensation. This may be taken at the commencement of a voyage, or when the sea commences to be rough, or at the advent of a storm when the motion of the water causes nausea; this dose is at times not sufficient with persons refractory to the action of belladonna, and I have repeated it twice at hourly intervals before incipient dryness of the throat, or disturbance of vision warned me that atropinism had been reached, when in every instance of my observation the symptoms of seasickness disappeared. Other observers found this dose in rare instances too great.

The advantage of hypodermic medication is the rapidity with which the effect is produced, and the certainty that no accumulating action need be feared, as is the case when the remedy is taken *per orem*—perhaps too late to prevent nausea—and possibly remaining in the stomach undissolved, without apparent effect, when it might be followed by a second dose, both operating together and acting in too severe a manner. This happened in an instance when I entrusted the remedy to a lady going from Manila to Hongkong. She encountered a sudden severe storm and treated a number of her lady friends aboard with the uncertainty of medication by the mouth and overdosed them so as to result in severe symptoms of atropinism.

As a rule, one dose is sufficient for a whole voyage, apparently overcoming the disturbance until the voyagers acquire their "sea-legs," but in a long trip with severe weather occasional doses are required to keep up the effect.

The rationale of the treatment may be found in the stimulating effect of the atropin on the circulation in the brain, while the strychnin causes a similar action through the spinal cord in the respiration.

I have a few instances of my own observation and extracts of reports made by medical officers and patients. The general consensus of opinion is that the remedy is a specific. I am satisfied from my own observations that when it failed there must have been some complications which I was always able to meet in my experiments.

On one of my ocean trips, one of the passengers was a surgeon of the army who had occupied a similar position in the navy, but had been compelled to resign because in any kind of weather on board ship he continually suffered from seasickness. I gave him one dose of the remedy when we left the harbor, and for safety's sake repeated it on two subsequent days, and this officer remained free from seasickness.

Another officer suffered from severe headache and attributed it to "biliousness" without being benefited by any treatment. I suggested seasickness as the cause, and by one dose of the remedy the illness was cured.

Letter of M. A. Delaney, first lieutenant and assistant surgeon, U. S. A.:

OFFICE OF THE SURGEON,
U. S. ARMY TRANSPORT SHERIDAN,
SAN FRANCISCO, CAL., Dec. 28, 1904.

COL. A. C. GIRARD,
Asst. Surgeon-General U. S. A.
San Francisco, Cal.

Sir:—I have the honor to report in regard to the value of the prescription for seasickness which you gave me for trial whilst stationed in Manila, P. I., as follows:

While transport surgeon on the *Sheridan* on the trip from Manila, P. I. to San Francisco, California, Nov. 15, 1904, to Dec. 15, 1904, I had a very good opportunity to test its value as nearly one-half of the passengers on board were seasick and in nearly every case it gave prompt relief. In some of the cases it was given by mouth and while slower in action, yet it was effectual. In three very severe cases, among them myself, it gave first-class results and in a very short time I was able to resume my duties without any further inconvenience. It was also used in the cases of five hospital corps privates (in these cases hypodermically) and in a very short time they were able to resume their work and take food.

As I personally used this remedy, I can unhesitatingly say that it was a great benefit to me.

Extract from Report of Transport Surgeon H. C. Moses:

Report of *mal de mer* treatment with the Girard mixture: Number of cases treated, 38; number relieved after first treatment, 20; number of recurring cases in which decided relief or temporary relief was noticed, 16. The average number of treatments received by these 16 cases was 4. Number of cases in which no relief was noticed, 3. These cases received but one treatment and it is reasonable to suppose did not get the full physiologic action of the remedy.

Extract from letter of First Lieutenant and Assistant Surgeon W. T. Davis, transport surgeon:

MANILA BAY, PACIFIC ISLANDS,
Sept. 29, 1906.

COL. A. C. GIRARD,
Asst. Surgeon-General, U. S. A.,
Manila, P. I.

Sir:—I have the honor to report, as requested, on the results of the treatment of *mal de mer* by means of hypodermic injections of the sulphates of atropin and strychnin.

Number of cases treated, 20; number cured by one injection, 12; number cured by two injections, 5; number not affected, 3.

I find this treatment to be a specific in a large majority of the cases.

Extract from letter of Col. B. F. Pope, assistant surgeon-general, U. S. A.:

I specially write to inform you of the successful use of your prescription for seasickness, both on Mrs. Pope and myself and Col. D.

We were greatly prostrated by seasickness during the first twelve hours. A single injection put Mrs. Pope on her feet, and more important than all, entirely relieved her of sea terror so that she said the boat might turn over for all she cared. With her I repeated the dose once in twenty-four hours until we got into smoother water, when no more was necessary.

Col. D. (who usually took to his bed as soon as the steamer left the wharf and did not rise until the end of the journey) required but one injection. I took two. Others took one or two and always good results.

Extract from letter of Capt. Dwight B. Taylor, assistant surgeon U. S. Vols., transport surgeon:

There is no doubt in my mind of the complete efficacy of this prescription, and the patients were all greatly pleased at its prompt and lasting action. The Americans who had it had not yet vomited and did not; they were all about ready to when they received the treatment. Some of the Japanese (crew) had vomited, but they were all right and at work after taking the medicine. By seeing the effect of the treatment in patients who had vomited and those who had not, I am the more convinced of its value.

Extract from letter of Capt. Samuel D. Crawford, 28th U. S. Vols., on board the U. S. A. T. *Kilpatrick:*

ON BOARD THE U. S. A. T. KILPATRICK.

COL. A. C. GIRARD,
Chief Surgeon, General Hospital,
Presidio, San Francisco.

Sir:—I have the honor and pleasure to tell you how much I am indebted to you for the relief which your anti-seasick remedy gave me a few days ago. Dr. Kelly, the ship's surgeon, had announced in a posted notice that he would give the passengers the benefit of the remedy, and in every instance in

which he applied it, either before to prevent or afterward to give relief, he was successful. I think it is a wonderful discovery, and I am sure that if the sea-traveling public could have the privilege of having the remedy at hand, it would make countless thousands happy, and will be an assurance to those who do not travel at sea because of seasickness, that would enable them to enjoy life on the ocean wave without the old time periods of travail and despondency. I sincerely hope that the environments of the service will not prevent you from placing this remedy on the market, and I am sure that a grateful public will rise to bless you every time they have occasion to travel on the high seas.

Extract of letter of Dr. T. G. Holmes, transport surgeon, U. S. A. T. *Grant:*

After the second day I used it for six passengers, with prompt relief in every case; two only had any subsequent nausea, which yielded to a repeated hypo. Among the soldiers I used it for ten, with equally prompt and satisfactory effect and no subsequent nausea.

Extract from letter of Captain (now Lieutenant-Colonel) E. T. Fremont:

I write just a line to thank you greatly for the benefit to me of your remedy for seasickness. I only took two doses (and for me the atropin as put up was halved, as the whole tablet made me sleep too much and made my throat tremendously dry) and thereafter I steadily improved. No matter how rough, I was not again affected.

Extract from letter of Mrs. M. S. R.;

I can thank you most sincerely and gratefully for the remedy for seasickness. We had a most trying and stormy passage, and by the daily use of the small pills I managed to stay on deck every day. I am such a miserable sailor that I feel sure nothing would absolutely cure me, but as I am usually in bed, deathly ill, from San Francisco here, and not able to keep any food down, I am sure you can see how much good you did me when I was only actively ill twice and able to stay on deck all the time.

Extract from letter of Capt. I. T. Jenks, 24th Infantry:

Your prescription worked marvels with me. We had a rough trip and I did not miss a meal.

I have many more letters of the same import, but these ought to suffice.

I notice in the daily press in a telegram from Lisbon, February 10, the following:

"The Anti-seasickness League will hold a meeting here in April, when one hundred physicians will charter a steamship and go out to sea to try personally the medicines which have been advanced as preventives of seasickness. Six hundred invitations have been sent to members of the medical profession, and out of the acceptances one hundred will be chosen to go on the voyage."

This appears to be an excellent opportunity of bringing my investigations to the notice of the profession, and I hope that this paper will be read in full and be given due consideration.

I conclude with an observation made again lately that the success or failure of the remedy greatly depends on the patient himself. This happened in the case of an officer to whom I gave a number of doses of tablets containing the atropin and strychnin. He was undergoing a voyage on a small coastline steamer. The weather was very rough and the vessel rolled and pitched greatly. He took the medicine before leaving and was not affected by the sea. On his return, vessel and weather being similar, but the stomach full, he was not benefited, as probably the remedy did not have time to be absorbed, and he suffered greatly for several days.

JOINT MANIFESTATIONS IN HEMOPHILIA.*

EDWIN W. RYERSON, M.D.

Orthopedic Surgeon to Cook County and St. Elizabeth's Hospitals; Assistant Professor of Orthopedic Surgery, Chicago Policlinic; Associate in Surgery, Rush Medical College.

CHICAGO.

Fifty years ago clinicians clearly recognized the frequency of joint lesions in hemophiliacs, but were unable to agree on the pathology of these lesions. Elsässer considered the condition to be merely coincident arthritis due to gout, and Lange, in 1851, supported this view. As late as 1870 we find Grandidier insisting on a rheumatic or gouty diathesis as the sole factor, although Volkmann, in 1868, had clearly shown that hemorrhages into the joints occurred frequently and with little traumatic cause in bleeders. Wickham Legg, about 1870, wrote an able monograph with some mention of the arthritis, and ten years later concluded correctly as to the etiology.

Reinert and Lossen made strong pleas for the hemorrhagic nature of the joint lesions, but as late as 1892 we find no less an authority than William Osler apparently unwilling to hazard a theory, although Poncet, Charcot and Redfern had given good descriptions of the changes in the synovial surfaces. It was not until the able and convincing paper of König was published, in 1892, that the profession at large became awakened to the true cause of the arthritis.

It is interesting to read that the greatest authority in the world on tuberculosis of joints should have operated on two hemophilic knees in one year under the impression that they were tuberculous. In 1896 an Omaha surgeon reported another case, and I have heard of two others which I have been unable to find. All these operations resulted fatally from slow oozing some days after the operations, in spite of every form of treatment then recognized as advisable. All these cases so strongly resembled tuberculosis that a consideration of the differential diagnosis assumes great importance to the operating surgeon.

Although any joint may be affected, the vast majority of the hemorrhages occur in the knee, and, of course, the male sex is far more liable to suffer than the female. I believe that a careful and painstaking examination will reveal the true condition in practically every case if the possibility of hemophilia be borne in mind. The diagnosis in the early or acute stage presents several difficulties. It is probable that many cases go unrecognized, and, in fact, in a case of effusion into the knee joint following a moderately severe trauma, with no rise in temperature and no great pain, it may be impossible to make the correct diagnosis without aspiration of some of the fluid. There seems to be a well-recognized disinclination on the part of many hemophiliacs to admit the fact that they are bleeders, and several observers state that the diathesis is even strenuously denied by the patients.

PATHOLOGY.

I shall not attempt to review the literature of hemophilia in general nor to theorize as to its essential cause. It is now clearly recognized that the joint manifestations are due to an intracapsular hemorrhage. Rheumatism and gout play no part whatever, although there is perhaps no reason why they may not coexist. The hemorrhage may occur without any appreciable trauma, though more often a slight fall or blow is the exciting

* Read before Chicago Pediatric Society.

cause. The authors all agree that at least one such attack, even if severe, may be recovered from with perfect restoration of joint function, but that, if repeated, some disturbance of mobility may remain permanently. The pathologic findings may be conveniently divided into different stages. König's classification is satisfactory if slightly modified.

First Stage.—The first stage is simply the presence of free fluid blood in the joint. It is rapidly absorbed under proper treatment, and leaves no traces except a moderate brownish or yellowish discoloration of the capsule and synovial surfaces, due to the retention of blood pigment. The articular cartilage on the ends of the bones does not lose its gloss or whiteness, and joint function becomes normal. Many patients after an attack of this kind have no recurrences in any individual joint, though several articulations may suffer in succession. These cases, therefore, present little of interest to the orthopedic surgeon and are usually treated successfully by the general practitioner as acute articular rheumatism.

Second Stage.—With repeated hemorrhages in a single joint, distinct pathologic changes take place which are very remarkable. The capsule becomes thickened and succulent and much darkened. A fibrinous deposit appears all over the capsule and the synovial folds. Delicate, brownish, pigmented tufts form on these areas, and later filiform, slender threads grow from them and float swayingly about in the blood serum, like seaweed. The articular cartilage itself is invaded by brownish patches and tufts, and begins to degenerate, and curious characteristic defects are left, shallow, irregular, like the outlines on a map. The rest of the cartilage becomes brownish and loses its gloss.

Third Stage.—Later comes the third stage, with adhesion of these little tufts to the opposite articular cartilage, causing a more or less complete ankylosis. The fluid in the joint is absorbed, and only the thickening of the synovial surfaces, and the ankylosis remains, with usually a marked flexion of the joint. There is never any tendency to abscess or to sinus formation.

CLINICAL MANIFESTATIONS.

The clinical picture in the first stage may be confusing. Some cases closely resemble rheumatism with pain, swelling and joint effusion. This type usually follows trauma and when less severe may be diagnosed as simple synovitis; while other cases come on spontaneously with a painless and fluctuating swelling of the joint and little or no interference with function. Either variety progresses rapidly to perfect cure unless followed by exacerbations due to repeated hemorrhages. In the second stage we see what is often a perfect picture of a tuberculous joint in a subacute condition, thickened capsule, effusion, limitation of motion, beginning flexion-deformity and spasm of hamstring muscles. This was the condition of the joints operated on by König. Atrophy of the limb is pronounced and the differential diagnosis is most difficult. In the third stage there may be a complete bony ankylosis, as in a case reported by Summers, with atrophy and marked flexion, or perhaps a great limitation of motion, with the patella fastened to the femur by small areas of bony adhesions arising in places where the cartilage has been destroyed.

It is stated that a rise of temperature may occur during acute attacks of hemarthrosis, to as high as 102 F., but it is rare, and rapidly subsides, becoming normal in a few days.

DIAGNOSIS.

First Stage.—The conditions most closely resembling the first stage of hemarthrosis are acute synovitis and intermittent hydrops. In acute synovitis there is always a history of a fairly severe injury, the pain and discomfort are generally greater, and a local point of distinct tenderness can be made out at the site of the injury. The pain on motion and the functional disability are greater than in hemarthrosis and the effusion disappears more slowly. A careful aspiration of the fluid, under rigid asepsis, and using a needle of a very small caliber, would probably be harmless in any case and would afford valuable information. It is practically painless, if skilfully done, and I recommend it as a routine procedure in doubtful cases.

Intermittent hydrops, or hydrarthrosis, is a very rare disease, only about 70 cases being reported in the literature. It is characterized by a sudden painless, or nearly painless, effusion into the joint, a rapid disappearance of this effusion, and a complete recovery, followed by a series of precisely similar attacks at remarkably regular intervals, this periodicity, the mildness of the attack, and the absence of any traumatism being the chief characteristics. In a few cases, the pain has been a more prominent feature. Nothing is known of the etiology, and aspirations have shown usually a clear sterile fluid.

The various forms of infectious arthritis, such as gonorrheal, typhoid, pneumococcus, scarlatinal, and so forth, as well as the ordinary pus-germ infections, are much more painful and persistent than hemarthrosis, are attended with greater constitutional disturbance, and have the antecedent disease as a suggestive factor in the diagnosis. Acute articular rheumatism is rarely confined to a single joint, and has the same general diagnostic differences as the other infectious arthritides.

A true hemarthrosis is unquestionably the cause of the joint symptoms occurring in the so-called hemorrhagic diseases, such as Henoch's purpura, purpura rheumatica (Schoenlein's disease), purpura hemorrhagica, and scurvy. In these diseases the petechial hemorrhages into the skin and mucous membranes will at once suggest the probability of a similar involvement of the synovial tissues.

Second Stage.—In the second stage, the thickened capsule, the limited motion, and the beginning flexion suggest tuberculosis, but careful examination will show that the spastic contraction of the hamstrings is not a true reflex spasticity, but can be voluntarily relaxed. Also, there is no free fluid in hemophilic joints after the hemorrhage has been absorbed, and no individual points of tenderness can be found. Nearly all, if not all, tuberculous joints show a permanent increase in both local and bodily temperature, the latter usually reaching 99 or 99.5 degrees in the afternoon. The general onward march of the lameness and swelling, without any very sudden exacerbations or remissions, together with perhaps a cold abscess or night cries, would point to tuberculosis. Some of the so-called chronic rheumatoid diseases, especially arthritis deformans, bear a certain resemblance to hemarthrosis, but the characteristic grating, the slow onset, the involvement of several joints, and the presence of irregular bony or cartilaginous hypertrophies at the edges of the joints would exclude hemarthrosis.

Third Stage.—In the third stage the clinical picture may be exactly that of an old tuberculous joint with complete ankylosis and without evidence of suppuration. It may be absolutely impossible to make a diag-

nosis without the aid of a complete and intelligible history of the case. The flexion of the hemophilic knee is usually not so exaggerated as that of an untreated tuberculous knee, and there is less backward displacement of the head of the tibia. Before considering operation in any old ankylosed joint where the history and examination do not positively rule out hemophilia, a test of the coagulability of the blood should be made.

TREATMENT.

The treatment in the primary stage should be such as will promote the absorption of the effused blood. I recommend aspiration with a fine needle, believing that it is of great importance to prevent, so far as possible, the deposit of fibrin on the joint surfaces, and that it is hardly possible for a fatal hemorrhage to occur through the wound of a small needle. After the blood has been removed, a few cubic centimeters of adrenalin solution should be injected, and a pressure bandage applied for five or six hours. The absorption of the blood, in case aspiration be deemed inadvisable, can be hastened by free use of the affected joint. It should not be put up in a plaster cast or in any other kind of fixation, after the first day, because any aseptic fluid in any joint will be absorbed more quickly under motion and massage than under fixation. This has been well demonstrated by Hosmer, Henrotin, and others in their treatment of acute synovitis. Constitutional treatment by such drugs as gelatin, adrenal extracts and calcium chlorid offers some security against future attacks, and should be tried faithfully. It does not show any great uniformity in results.

In the later stages, when there is a tendency to flexion, it is wise to apply traction until the joint is straightened, and then to use a splint or cast until the tendency has disappeared. Ankylosis in flexion might be corrected by the Goldthwait genuclast, by forcible manual redressment, or even by osteoclasis, followed by immobilization until ankylosis in good position has occurred. Any cutting operation should be shunned like the plague.

100 State Street.

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN.

SUBSTANCES USED AS VEHICLES.

CHAPTER XXVI.

The great majority of physicians pay all too little attention to the art of rendering their prescriptions pleasing alike to the eye and to the palate. Even in medical schools, if the matter is considered at all, it is usually deemed sufficient to instruct the student to give the mixture a sweet taste, by the addition of syrup, or a distinctive aroma by the addition of one or the other of the official medicated waters, with little regard for individual taste or the nature of the mixture. In the matter of appearance it is commonly considered quite sufficient to avoid the inky mixtures produced by the addition of iron compounds to preparations containing tannin, or tannin-like substances.

From the point of view of the patient it is safe to say that the appearance of a mixture is often of even greater importance than the taste, not alone in so far as it concerns the individual preference of the patient, but even to the extent of affecting the absorption and the subsequent assimilation of the medicine, since we know that the digestive secretions are stimulated by tempting looking substances and are inhibited by those which appear disgusting. In the case of women and children the subjects of flavoring and coloring are of much more importance than with men.

While the average physician will, no doubt, rightly consider that this subject does not deserve very extensive study on his part, he must admit that the observance of a few easily acquired rules may be well worth remembering.

Unlike the question of ready-made formulas for a great variety of conditions demanding individual consideration, there is no reason why flavoring and coloring should not be reduced to the very simplest forms and used as a routine whenever the mixture admits of it.

Despite the pernicious activity of manufacturers of ready-made pills and tablets in flooding the market with all possible substitutes for tinctures, fluid extracts and solutions, it has been amply demonstrated that these solid forms of medicine can not compare in efficiency or in usefulness with the equivalent preparations given in liquid form. We will, therefore, confine ourselves entirely to the discussion of these liquid forms of medicine and to enumerate and point out the uses of the several preparations that are available as solvents, or as vehicles, for the administration of otherwise solid substances.

On a subject that is so far-reaching and varied as this must be, it will, of course, be evident that the several matters can not be taken up in detail, but must of necessity be more in the nature of suggestions for observation and study. With the wealth of material that is available, by the use of the official aromatics and diluents, it should be a comparatively easy matter for a physician to become thoroughly familiar with the properties and possible uses of at least several of these preparations and by judicious combination to produce not alone a variety of mixtures, but, also, to impart to them an individuality in which he may well take pride.

Many of the comparatively tasteless substances merely require the addition of some mildly aromatic solvent or diluent, such as the aromatic medicated waters. Substances that are more acrid, bitter or saline in taste may be masked by the addition of a small amount of syrup to the aromatic, or by the addition of a preparation containing glycyrrhizin, like the now official elixir adjuvans. Nauseous bitters are best masked with strong aromatics and syrup. The simple but persistent bitters, such as quinin and strychnin, are agreeably modified by such an aromatic as tincture of sweet orange peel, wine and sufficient syrup to suggest sweetness. As an example of such a preparation we may mention the bitter wine of iron, which will be appreciated if one will but taste this really elegant preparation.

Medicated Waters.

The most simple and, therefore, the most readily available of the official diluents or vehicles are the aromatic, medicated waters. They are particularly well adapted for dissolving such comparatively mild tasting substances as potassium citrate, sodium benzoate, sodium salicylate, morphin sulphate and antipyrin.

One of the most pleasant of these preparations is:

AQUA AMYGDALÆ AMARÆ.—U. S.—Bitter almond water. This contains about 0.1 per cent. of oil of bitter almond, and appears to be particularly adapted for use with sedative expectorants such as codein sulphate.

Average dose: 4 c.c. (1 fluidram).

The following are particularly well adapted for use with children:

AQUA ANISI.—U. S.—Anise water, and

AQUA FŒNICULI.—U. S.—Fennel water. They contain about 0.2 per cent. of the respective volatile oils and have long been popular as correctives or diluents for medicines such as fever mixtures and mild anti-diarrhea mixtures, designed primarily for children.

Average dose of either of the above: 16 c.c. (4 fluidrams).

Another aromatic water that has met with considerable use is:

AQUA CINNAMOMI.—U. S.—Cinnamon water also represents approximately 0.2 per cent. of the volatile oil and, as a flavor, is sometimes preferred.

Average dose: 16 c.c. (4 fluidrams).

By far the most popular of the aromatic waters are:

AQUÆ MENTHÆ PIPERITÆ.—U. S.—Peppermint water, and

AQUÆ MENTHÆ VIRIDIS.—U. S.—Spearmint water. These, like the preceding, are simple solutions of volatile oils in water

and represent approximately 0.2 per cent. of their respective volatile oils.

Average dose of either: 16 c.c. (4 fluidrams).

Peppermint water, or spearmint water, is particularly well adapted for use with the mild alkalies such as potassium bicarbonate or sodium bicarbonate, or mixtures of these with other soluble salts.

The efficiency of solutions of the alkaline bicarbonates may usually be enhanced by the addition of a simple bitter, such as tincture of nux vomica or tincture of calumba.

Simple solutions, even such as contain a small addition of a bitter substance, should be directed to be filtered, as this adds materially to the appearance of the mixture and thus enhances its palatability and efficiency.

When a vehicle having more pronounced characteristics is desired the official aromatic elixir will probably serve to meet more possible indications than any one other preparation. It may also be varied by the addition of the fluid extract of glycyrrhiza, as in the official elixir adjuvans, or by the addition of one of the official spirits, syrups, aromatic tinctures or simple wines.

Aromatic elixir is particularly useful in connection with the scale salts of iron, the bitter alkaloids, and also with the soluble bromids and iodids.

The following are among the preparations that will be found to be of use in connection with the possible modifications of the simple elixir:

ELIXIR AROMATICUM.—U. S.—Aromatic elixir is practically a solution of a mixture of the oils of orange peel, lemon, coriander and anise in 25 per cent. alcohol, containing about 38 per cent. of syrup. The resulting preparation is not alone strongly aromatic, but is also sufficiently dense to hold finely divided substances well in suspension, while the alcohol content is not sufficient to be objectionable in the ordinary doses.

ELIXIR ADJUVANS.—U. S.—Adjuvant elixir. This is a simple mixture of 12 parts of fluidextract of glycyrrhiza with 88 parts of aromatic elixir, and is particularly well adapted for masking acrid, bitter or saline materials. The contained glycyrrhizin not being soluble in acid solutions, the preparation is obviously not suited for use with diluted acids or acid salts.

The official spirits that may be used as additions to aromatic elixirs or as correctives to other alcoholic or hydroalcoholic solutions are:

SPIRITUS ANISI.—U. S.—Spirit of anise contains 10 per cent. of oil of anise in alcohol.

Average dose: 4 c.c. (1 fluidram).

SPIRITUS AMYGDALÆ AMARÆ.—U. S.—Spirit of bitter almond contains 10 per cent. of oil of bitter almond in alcohol, and is the most potent of the official spirits. It is markedly aromatic and a very small quantity usually suffices to impart a distinctive almond odor and taste.

Average dose: 0.5 c.c. (8 minims).

SPIRITUS CINNAMOMI.—U. S.—Spirit of cinnamon contains 10 per cent. of oil of cinnamon.

Average dose: 2 c.c. (30 minims).

SPIRITUS GAULTHERIÆ.—U. S.—Spirit of gaultheria is a useful preparation for cases in which the patient appears to have a predilection for teaberry or wintergreen. This preparation imparts a distinctive odor and taste and should be used with caution, as it appears to be objectionable to many people. It represents 10 per cent. of oil of gaultheria.

Average dose: 2 c.c. (30 minims).

SPIRITUS MENTHÆ PIPERITÆ.—U. S.—Spirit of peppermint and

SPIRITUS MENTHÆ VIRIDIS.—U. S.—Spirit of spearmint, in addition to containing 10 per cent. of the respective volatile oils also represent the alcohol-soluble portion of 1 per cent. of the respective dry crude drugs, which impart to them a distinctive yellowish-green color.

Average dose of either: 2 c.c. (30 minims).

The aromatic tinctures that are particularly useful for adding distinctive characteristics to liquid mixtures are:

TINCTURA AURANTII DULCIS.—U. S.—Tincture of sweet orange peel. This preparation is directed to be made from the fresh peel and represents approximately 50 per cent. of the crude drug. It is a delicate but efficient aromatic and is useful in connection with any of the hydro-alcoholic mixtures.

Average dose: 4 c.c. (1 fluidram).

TINCTURA CARDAMOMI.—U. S.—Tincture of cardamom represents 20 per cent. of cardamom in diluted alcohol.

Average dose: 4 c.c. (1 fluidram).

TINCTURA CARDAMOMI COMPOSITA.—U. S.—Compound tincture of cardamom represents 2.5 parts each of cardamom and Saigon cinnamon, 1 part of caraway, 0.5 parts of cochineal and 5 parts of glycerin in sufficient diluted alcohol to make 100 parts.

Average dose: 4 c.c. (1 fluidram).

TINCTURA LAVANDULÆ COMPOSITA.—U. S.—Compound tincture of lavender consists of a mixture of 0.8 parts of oil of lavender flowers and 0.2 parts of oil of rosemary in 75 per cent. alcohol, which is used to exhaust 2 parts of Saigon cinnamon, 0.5 part of cloves, 1 part of nutmeg and 1 part of red saunders, enough of the menstruum being added to make 100 parts.

(The possible uses of this preparation are probably best illustrated by the official solution of potassium arsenite, which is flavored and at the same time colored by the use of 3 per cent. of this tincture.)

Average dose: 2 c.c. (30 minims).

TINCTURA VANILLÆ.—U. S.—Tincture of vanilla represents 10 per cent. of vanilla in 65 per cent. alcohol and is sweetened by the addition of 20 per cent., by weight, of sugar.

The official simple wines are:

VINUM ALBUM.—U. S.—White wine. This is an alcoholic liquid, made by fermenting the juice of fresh grapes, the fruit of *Vitis vinifera*, and usually contains about 10 per cent. of alcohol.

White wine constitutes an excellent vehicle for a number of acrid or bitter substances, and is particularly useful as an addition to the official aromatic elixir. If from 10 to 25 per cent. of white wine be added to aromatic elixir it will impart to the latter a distinctive and generally agreeable odor and taste.

VINUM RUBRUM.—U. S.—Red wine is an alcoholic liquid that is made by fermenting the juice of fresh red-colored grapes, the fruit of *Vitis vinifera*, in presence of their skins, and subjected to the usual cellar treatment for fining and aging.

The official syrups that are generally well known or widely used as diluents, correctives or vehicles are:

SYRUPUS ACIDI CITRICI.—U. S.—Syrup of citric acid. This is a slightly acid syrup, flavored with tincture of fresh lemon peel, and is useful in connection with the aqueous solutions of the alkaline salts of organic acids, such as potassium citrate.

SYRUPUS AURANTII.—U. S.—Syrup of orange also contains a trace of citric acid and has a pleasant acidulous taste. It is frequently used in place of the syrup of citric acid and is preferred by many.

SYRUPUS PRUNI VIRGINIANÆ.—U. S.—Syrup of wild cherry, while it represents the aqueous extractive of 15 parts of wild cherry, is most largely used as a pleasant vehicle or as an addition to other diluents, particularly in connection with expectorants.

Average dose: 4 c.c. (1 fluidram).

SYRUPUS TOLUTANUS.—U. S.—Syrup of tolu represents the water-soluble portion of 5 per cent. of tincture of tolu, and, like the preceding, is frequently used as a corrective to mixtures that are designed for use as expectorants.

Average dose: 16 c.c. (4 fluidrams).

SYRUPUS SARSAPARILLÆ COMPOSITUS.—U. S.—Compound syrup of sarsaparilla contains fluidextract of sarsaparilla, fluidextract of glycyrrhiza and fluidextract of senna, and is flavored with a mixture of the volatile oils of sassafrass, anise and gaultheria.

This preparation constitutes an interesting reminder of the widespread use of sarsaparilla as a universal panacea almost a century ago, but is now seldom used for any other purpose

than a vehicle. It is particularly useful for such acrid drugs as the soluble mercurial salts and the iodids and bromids.

Average dose: 16 c.c. (4 fluidrams).

For use with immiscible liquids, for making emulsions and for suspending insoluble powders in aqueous solutions it is an almost universal practice to use the official mucilages or gums.

MUCILAGO ACACIÆ.—U. S.—Mucilage of acacia, containing 34 per cent. by weight of acacia, 33 per cent. of limewater and 33 per cent. of distilled water, is probably the best known of these several preparations. It has a very wide field of usefulness, but as acacia is precipitated by alcohol it is not useful in connection with strongly alcoholic liquids. The presence of limewater may prove to be a disturbing factor in connection with solutions of the alkaloids, and here it may be readily substituted by the syrup.

SYRUPUS ACACIÆ.—U. S.—This represents 10 parts of acacia in a moderately heavy syrup.

MUCILAGO TRAGACANTHÆ.—U. S.—Mucilage of tragacanth contains 6 parts of tragacanth, 18 parts of glycerin and sufficient water to make 100 parts. This preparation is particularly useful in connection with alcoholic liquids and is very widely used for suspending the content of resinous tinctures in aqueous mixtures.

Another preparation that is used quite extensively to mask acrid, bitter or otherwise disagreeable drugs is the recently readmitted

EXTRACTUM MALTI.—U. S.—Extract of malt occurs as a semi-solid extract, having the consistency of thick honey, and is itself considered to be nutritive, tonic and laxative. It has been used quite extensively, particularly in connection with several well-known proprietary preparations, as a vehicle for cod-liver oil, cascara sagrada and the bitter alkaloids like quinin and strychnin.

Average dose: 16 c.c. (4 fluidrams).

Suggestive Coloring.

The subject of coloring is a much simpler one than is that of flavoring, but is of almost equal importance, if we are to judge by the practices that have been followed by manufacturers of elegant proprietaries for upward of a quarter of a century.

Coloring agents are primarily divided into such as are useful with alkaline and neutral substances and such as are useful with dilute solutions of the official acids and acid salts.

For those of the first class, preparations containing carmin or cochineal, for red, and glycyrrhizin for brown are readily available. For the solutions of acids and acid salts, however, neither of these substances would answer, as they are both precipitated by acids, and we have recourse, therefore, to cudbear for the red and caramel for the brown.

Taking the official aromatic elixir as a type, this may be colored a bright red by the addition of from 10 to 20 per cent. of the compound tincture of cardamom, which contains cochineal, or it may be given an equally bright red color by the addition of 1 per cent. of the tinctura persionis (cudbear) of the National Formulary. Cudbear is the source of the bright red color that is so common in proprietary preparations, and as cudbear itself has no known medicinal properties, apart from the pleasing suggestiveness of the resulting preparation, we must naturally conclude that the manufacturers of proprietary preparations have succeeded in impressing not alone the patient, but, in many cases at least, the physician also, by the judicious use of pretty colors.

The use of caramel or burnt sugar is too well known to need further comment, apart from the fact that the National Formulary contains a formula for a compound tincture of cudbear which contains 10 per cent. of caramel and will be found useful when a brownish-red preparation is desired.

A very pleasing golden-yellow mixture that appears to be fairly stable with either acid or alkaline solutions may be obtained by adding 1 per cent. or even less of the now official tincture of hydrastis. This preparation, though made with 65 per cent. alcohol, mixes readily with the official elixir, but precipitates slightly when added to aqueous solutions, and they should, therefore, be directed to be filtered before being dispensed.

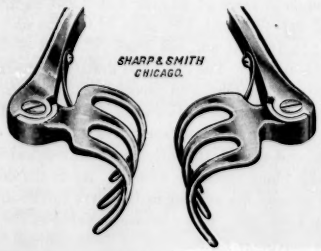
New Instrument

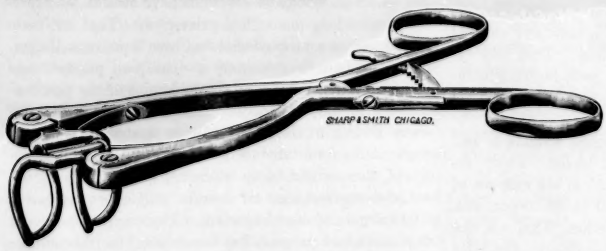
A NEW SELF-RETAINING WOUND RETRACTOR.

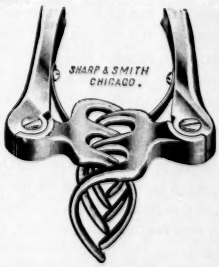
CHARLES ADAMS, M.D.
CHICAGO.

For the past ten or twelve years I have made use of a self-retaining retractor which I believe to be of sufficient value to merit publication of its description.

By the backward crossing of the teeth of the instrument when closed the retractor can be introduced with facility in a small wound. The operator can adjust the instrument to the required degree of traction and can depend on it to retain its place.







With these advantages, the retractor may take the place of one assistant and thus diminish the chances of infection, which are always increased in proportion to the number of hands coming into contact with the wound.

The retractor has been made in two sizes, the longer for abdominal work, the smaller for herniotomies, adenectomies, etc.

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SATURDAY, JUNE 23, 1906.

FOURTH OF JULY TETANUS.

In another week we shall experience our annual tetanus inoculation experiment, its size depending on the extent to which public authorities permit the violation of the laws that, in nearly every community, prohibit the use of firearms. The results of the inoculations depend on two factors, the patient and his family, and the family physician. For every blank cartridge, giant cracker or cannon wound, public authorities or public sentiment are responsible. For every one of these wounds that causes tetanus, neglect on the part of patient or of his physician is responsible. We state these facts thus plainly because thorough study of the Fourth of July casualities for several years has taught us that they are facts. In 1903, the total result of the celebration was 466 dead, 415 cases of tetanus and 3,983 injured; in 1904, it was 183 dead, 105 cases of tetanus and 3,986 injured; in 1905, it was 182 dead, 104 cases of tetanus and 5,994 injured. The great and gratifying decrease in the number of deaths, and especially of tetanus, since 1903, we must ascribe to two chief causes; first, the reduction in the use of blank cartridges as a means of celebration; and second, the improved care received by patients with blank cartridge wounds. As to the decrease in these wounds, the number in 1903 was 1,672; in 1904, 1,005; in 1905, 809. This decrease occurred as the result of enforcement in many cities of laws controlling the sale and use of pistols for celebration purposes, and because of the agitation in the daily papers and medical journals against this source of tetanus. That this explanation is correct is shown by the great increase in injuries from other causes against which there was no special agitation.

The improved care of blank-cartridge wounds is well shown by the reduction in cases of tetanus, which decreased in number by 75 per cent., while the number of blank-cartridge wounds decreased but about 30 per cent. in one year and 50 per cent. in the other. This was due partly to the more general understanding by the laity that blank-cartridge wounds are extremely dangerous because of the frequency of lockjaw following them, hence a larger proportion of boys with such wounds received prompt medical attention than was formerly the case. Partly it was due to a corresponding appreciation on the part of practicing physicians of the dangers of these wounds and the necessity for vigorous surgical treatment. As a result, more such wounds were treated by thorough opening, cleansing and free drainage, which reduced the subsequent occurrence of tetanus to a comparatively small percentage of the former incidence. More progressive physicians insisted on a prophylactic injection of tetanus antitoxin, and were able to rest assured that tetanus would not develop in any of their patients. We have no reason to expect that conditions this year will be much different from those of last July. In a number of cities public opposition to dangerous methods of celebration has increased, and in these an improvement may be expected such as was observed in other cities where the same attitude was adopted in the two preceding years. It is to be hoped that in communities in which a good start has been made no retrogression will occur. But at the best there will be several hundred cases of blank-cartridge wounds brought to physicians for treatment, and our greatest responsibility lies with these. We still, occasionally, sadly note in accounts of fatal tetanus cases that the patient saw a "doctor" who dressed the wound, and said that it was not serious; fortunately this statement is seen far less frequently than it was, but that it ever appears is a reproach to our profession.

We can add nothing to what we have previously said concerning the prophylaxis of Fourth of July tetanus, the sum and substance of which is that every penetrating or lacerated wound received from Fourth of July explosions must be treated as if it were known to contain tetanus bacilli in its deepest recesses. Only thorough opening and exploration of the entire tract under anesthesia, followed by thorough use of antiseptics, and free open drainage, can be looked on as an adequate cleansing. This should be followed at the earliest opportunity by the injection of from 5 to 10 c.c. of tetanus antitoxin (depending on the age and size of the patient). That the antitoxin is an essential feature of the prophylaxis has been repeatedly demonstrated by the occurrence of tetanus in patients whose wounds have been treated carefully, according to surgical principles.[1] That antitoxin is effective as a prophylactic has been equally well demonstrated, both in veterinary and hospital practice, and in our annual Fourth of July epidemics of the past several years. Consequently we feel safe in saying that if every Fourth of July injury were treated in the thorough manner outlined above on the day that it is received, there would be no tetanus epidemic.

Curative treatment of tetanus still offers us but a slight degree of encouragement. There can be no doubt that a distinct progress has been made, for the number of recoveries reported during the past two years has decidedly increased. To judge from the reports received, the greatest measure of success has been obtained by those who have practiced the combined intraspinal and intraneural injection of antitoxin, as described by Rog-

1. NOER: THE JOURNAL, Feb. 10, 1906, p. 432, and the accompanying editorial, p. 436.

ers;[2] at the same time withdrawing much of the toxic cerebrospinal fluid and giving abundant subcutaneous injections of antitoxin. Controlling the spasm by intraspinal beta-eucain injections, as advocated by Murphy, together with the usual administration of sedatives and chloroform as indicated, seem to be valuable auxiliaries. The use of magnesium sulphate injections as proposed by Meltzer[3] must still be regarded as in the experimental stage. Matthew's[4] method of injection of a solution containing calcium and other salts seems to depend similarly on the depressant effect of the alkaline-earth ions (calcium, magnesium) on the central nervous system. In spite of all these methods, however, recovery from tetanus remains an exceptional termination, and we must rely for our chief results on prophylaxis, both legal and surgical.

INSANE ASYLUM SCANDALS.

Although it might seem to be a part of the general tendency to the exposure of abuses, real and alleged, at the present time, there is nothing specially unusual in the fact that three or four separate insane asylum investigations, based on serious charges, have been under way during the past two or three weeks. Institutions of no other sort are looked on with more jealous scrutiny by the public than insane hospitals and there are none against which charges are more readily believed. When a real scandal occurs it is immediately made the most of by the newspaper, and the public is seldom in the proper state of mind to estimate the facts at their real worth and signification.

There is, unfortunately, too much ground for the lack of confidence that exists. Owing to the fact that in many parts of this country public asylums are considered more or less as political institutions and the positions in them as party spoils to be used by partisan politicians as part of their patronage, many abuses have crept in, and when scandals do occur they are well utilized for political purposes. The superintendents and higher officials, if not the whole working personnel of the institutions, are likely to be selected largely according to their political preferences and influence, and, though often respectable men and sometimes able in a professional way are not qualified as experts for their special responsibilities. Hence, the low standing of American psychiatry. Many unworthy and unfit persons are included in employés selected on political grounds, and the necessary discipline of the institution is corrupted by political "pull." There is little or no incentive to the acquisition of special qualifications on the part of the medical or attendant force; hence, neglect, if not abuse, is pretty nearly sure to follow. The trustees or directors are business men or politicians with no adequate ideas or ideals of the true functions of the institution. The superintendent is generally a respectable physician, but too often is selected for his political rather than his general qualifications, and the medical staff, if not chosen by him, are chosen on the same general principles. If the superintendent is allowed to select his assistants, some attention to their qualifications may be given, but their political standing must usually be all right. They are in any case apt to be little regarded by the trustees unless they have strong political backing, and their position and social standing in the institution, so to speak, largely depends on the personal equation of the superintendent.

That there have not been more asylum scandals under such a condition of affairs is surprising. The possibilities of such a system are self-evident, and the reason they are not realized in every case is because there is more good in human nature and more sense of responsibility in political appointees than the system itself demands. There are many institutions in this country that are conducted in a fairly respectable way even under such a system, and where political changes are not frequent actual progress and reforms may be brought about. The conditions, however, are better than they were, the tendency to reform is certainly spreading and, taking the country as a whole, there are reasons for encouragement. There is even an encouraging prospect that the politically-managed insane asylum will soon be the exception and not the rule throughout the land.

While we attribute the major part of the evils and the consequent lack of confidence on the part of the public to the past and present political management of these institutions, it does not follow that asylum scandals would entirely disappear were there no partisan political management whatever. Accidents, misuse of patients and other evil happenings are always liable to occur even when the *morale* of the institution is kept at its highest point, and this depends not only on the personality of the superintendent, his professional ability and his selection of his subordinates, but also on the element of chance to a certain extent. Even ideal institutions, and there are such, may not escape. "Accidents will happen in the best regulated families" and in the best regulated institutions as well, though their occurrence may be reduced to a minimum. No one can foresee all the possibilities, and, though a retrospect may show a fault, it is not always necessarily a very blamable one.

In Great Britain at the present time the institutions, public and private, for the care of the insane are probably as well regulated and guarded against such misfortunes as anywhere in the world, and yet it is in one of these that a scandal that was worse in its way than anything that has ever been reported from an American

2. "Treatment of Tetanus by Intraneural and Intraspinal Injections of Antitoxin," THE JOURNAL, July 1, 1905, p. 12.

3. "Treatment of Tetanus by Intraspinal Injection of Magnesium Sulphate," THE JOURNAL, May 19, 1906, p. 1502. Gives Meltzer's method.

4. "The Prophylaxis and Treatment of Fourth of July Tetanus," THE JOURNAL, June 18, 1904, p. 1621. Special article giving details of surgical methods and use of antitoxin. Included is the formula given by Matthews for calcium-containing salt solution (published in THE JOURNAL of August 29, 1903, p. 565.

asylum has occurred within a very few years. Under the conditions existing over there it excited little public comment, as public hospitals for the insane have, as a rule, the public confidence, and the mishaps that occur are so rare that they are not considered necessarily avoidable when they do happen. The commissioners in lunacy investigate, and their decision is accepted as trustworthy and final. In this country such an occurrence would have been exploited *ad nauseam* by the yellow newspapers, and in states where the traditions of political control still continue would probably receive a whitewashing report that might not whitewash and possibly be utilized as the basis of partisan recriminations. If due to a general laxity of discipline the blame might be shoved off on some subordinate, since the party can not afford to suffer through recognition of the responsibility of the higher authorities. Each such untoward happening should be an insurance against its repetition and every investigation a step toward reform of existing evils, and we believe that this will after all be the ultimate result.

It must be remembered, moreover, that in many cases unfounded charges are liable to be made. There is a considerable class of the insane that are very properly detained in institutions very much against their will, and we can not expect them always to take a favorable view of what they see and experience. Many, when fitted to be discharged from custody, still retain an irrational state of mind as regards their detention and are liable to imperfect and prejudiced recollections of their treatment. The position of an asylum superintendent is not always a pleasant one on this account, no matter how well meaning and conscientious he may be, and more than one has himself become insane as a result of his experience.

What is needed in this country, first of all, is absolute abolition of any idea that a charitable institution of this kind has any connection with politics, next a proper supervision of these institutions by some higher authorities like the British commissioners in lunacy, men selected solely on account of their experience as alienists, their known integrity, and possibly also in one of the members a high legal standing. Then there should be a system of promotion by merit and of special education of the medical staff in psychiatry. The state should educate its alienists from interne up to superintendent, as is done in New York State, and a subordinate position should not be considered as a mere temporary episode in the career of a young practitioner. The social standing of the assistant physicians should be higher. They should be encouraged to do good work and should get due credit for it and due reward, and responsibility should be accompanied by corresponding authority. At present too often the superintendent is all in all to the trustees and the rest of the medical staff a matter of very slight consideration. Lastly, there should be no undue secrecy about the internal workings of the institution and certainly no suppression of facts from those who are entitled to know; the business administration should always be subordinate and the medical and humane functions of the institution be first considered. It is needless to say that the utmost care should be exercised in the selection and retention of attendants and other subordinates and that the humane ideas of treatment of the insane should everywhere be inculcated and prevail. These are self-evident necessities of a successful administration.

THE RELATION OF WINDS TO SICKNESS.

Every one is familiar with the statements regarding the astonishingly low mortality in Chicago, and we are not venturing to criticise their accuracy. We are ready to admit that it is becoming increasingly difficult for people at any age to die in that fortunate city, and that stockyard odors, dirty streets, inadequate sanitary inspection and even impure foods are powerless in the face of the life-giving forces of the climate of Chicago. It is only when an attempt is made to explain the causes of this victory over the common enemy of mankind that we are apt to raise a slight protest. For instance, we are informed by the Bulletin of the Health Department that the soubriquet, "Windy City," is one that Chicago should be proud to bear, for "it is to the great wind movement of the city that it largely owes its pre-eminent healthfulness." The bulletin goes on to quote Prof. E. G. Dexter, of the University of Illinois, who, in a recent work, made the statement that such "phenomena" as "absence from school, absence from public duty, clerical errors, sickness and death" are more frequent in periods of aerial stagnation than in those of high winds.

Without going into the question of how Professor Dexter's statistics were gathered, and the other factors which influence mortality aside from atmospheric conditions, we wish simply to give the reverse side of the high-wind question as presented by Hueppe of Vienna.[1] To Hueppe the term, "Windy City," so long applied to Vienna, is synonymous with "Consumptive City." High dry winds, with their inevitable accompaniment of dust, he thinks, are responsible, in large degree, for the enormous mortality from tuberculosis in Vienna as compared with other large cities, such as Berlin and London. Berlin's mortality in ten years was 23.1 per 10,000 of population. London's, for the same period, was only 17.7, while Vienna's reached the astounding height of 46.4. Hueppe goes on to say that we realize the harmful effects of dust in closed spaces, in cotton and wool factories, cutleries, stone-cutting establishments, etc. Why, then, should we not recognize the dangers of dust-laden air in the streets, especially when we consider the nature of the dust. It is by the irritating effect on the lungs that dusty air increases pul-

1. Wien. klin. Wochft., 1904 p. 1001.

monary tuberculosis by preparing the lungs for tuberculous infection rather than by actually conveying the infection, for such dust off the streets is probably seldom rich in tubercle bacilli. Another danger is that of secondary infection. A case of uncomplicated tuberculosis may, by the inhalation of street dust, be changed into one of mixed infection. Thus may be explained the low rate of mortality from tuberculosis in damp, muddy, foggy cities, such as Berlin and London, as compared with dry and windy ones.

The mortality rate from tuberculosis in Chicago for ten years, from 1890 to 1899, inclusive, the period covered by Hueppe's statistics, is 17.1, a rate only very slightly below that of London. Yet in London conditions contributory to tuberculosis are exceptionally bad; 30 per cent. of the people live in poverty, alcoholism abounds, while overcrowding and underfeeding and physical degeneracy due to generations of poverty are seen to an extent unknown in any American city. Why, then, should Chicago, with her comparative prosperity, her lack of serious overcrowding and of old infected tenements, have a death rate from tuberculosis almost equal to London's? May not the reason be sought in the dust-laden atmosphere, caused by unclean streets and high winds? For though the general mortality of Chicago is low, yet the death rate from tuberculosis is proportionately high, being always since 1892 more than one-tenth of the whole.

DUST REMOVAL, NOT DISPERSAL.

We are in the midst of the dust season, and the problem of the removal of the fine particles that gather over everything, and especially on wearing apparel, is once more acute. Since the invention of the vacuum process by which dust is sucked up into a receiver to be carted away instead of being merely swept or brushed up into the air and then allowed to settle down again, these old-fashioned methods have come to seem especially obnoxious. In houses, especially where there are children, it would seem to be advisable that clothes, if dusted within the house at all, should be brushed in some special part of it quite segregated from the ordinary living rooms, and that no brushing should be done at night before the retirement of the family. Undoubtedly many of the so-called summer complaints are really not diseases of hot weather so much as of dusty weather. The dust is blown hither and thither and settles on the food and on the hands and thus readily finds its way into the digestive tract. For most people, such opportunities for infection mean nothing, since their resistive powers are quite sufficient to protect them, but for children and those in delicate health the presence of such infectious material in the intestinal tract may make all the difference between good physical condition and even severe illness. It is especially while traveling that the dangers of dust become more serious. It seems a pity that with the amount of energy that might readily be employed on a railroad train, for instance, for running some simple vacuum contrivance for the proper removal of dust, there should as yet be nothing of the kind hinted at even on the best trains. The morning brushing in the Pullman car is undoubtedly a source of considerable danger for persons with delicate throats or with weak lungs or with sensitive gastrointestinal tracts. It is here evidently that the next great hygienic improvement on cars and in dwelling houses must come. The old-fashioned methods are entirely too prone to produce serious results, and physicians should be leaders in the movement to relegate them to the lumber heap of disused things of the past.

AN AGED ATHLETE.

An old-time champion pedestrian, whose record 30 or 40 years ago aroused the country, has recently at the age of nearly 70 performed the feat of walking from Philadelphia to New York, a distance of 96 miles, in a little over 23 hours and finished the task in excellent physical condition. This is a good example of the fact that the physical organization of man need not necessarily go to pieces before the allotted three score years and ten, when, according to some, the system is worn out and useless. Of course, this man Weston is an exceptional case, but he shows what the possibilities are, and probably a great many other individuals of as great age could do likewise.

"THOU SHALT NOT KILL."

That misguided doctor in the Iowa legislature who created a newspaper furore last winter by his bill asking for compulsory killing off of incurables, threatens to introduce the same measure again, according to the newspaper press reports. It was considered a joke then, but evidently it was not so intended. The idea seems to suit a certain class in whom the moral principles are somewhat perverted or confused and the intellect more or less defective, judging from arguments brought forward in favor of the proposition. Fortunately, these individuals are few. The alleged plea that incurables are practically put out of existence in large hospitals is simply a libel on the profession and should be resented by us all as such. The state of Iowa will seriously endanger its reputation for good morals and good sense, if its legislature gives this proposition any semblance of a respectful consideration. The sixth commandment is still in force.

A NOTED X-RAY VICTIM.

The recent death of a prominent Rochester (N. Y.) physician from cancer, attributed to excessive exposure to the *x*-ray, adds to the long list of the martyrs to medical science and is a striking evidence of the dangerous possibilities of this very powerful agent. There have been many cases of inconvenient symptoms among *x*-ray workers, but we believe there are few serious cases that have originated of late years. Dr. Weigel was a pioneer in this line of investigation, and it is likely that he neglected due precautions before their necessity had been demonstrated by general experience. The fact that his case was diagnosed as cancer by one of the most eminent pathologists and that its clinical history was such as to warrant the diagnosis is suggestive. It does not favor the parasitic theory of that disease nor does it

necessarily disprove it. It shows very clearly, however, that the action on cell growth of the x-rays, which are so often beneficial in malignant disease, is not in all cases a very controllable one, and it emphasizes the necessity of special caution in their use.

FEE BILLS AND ANTI-TRUST LAWS.

The attorney general of Kansas has given out an opinion, according to newspapers, that the mere organization of physicians and the giving out of a scale of fees is a violation of the antitrust laws of the state. Of course, this is merely one official's opinion, but it can be acted on as the law until the courts decide otherwise. We do not know the full facts of the case as regard the points submitted to the attorney general by the county attorney who raised the question, but his decision seems to be a broad one, covering all society fee bills. Ordinarily these are understood by the profession as simply the expression of what is a reasonable charge for the services rendered and as not limiting the physician's or surgeon's privilege to charge more or less according to the special circumstances of the case. How such could be a violation of any reasonable laws is not very obvious. There have been medical fee bills as long as there have been medical societies, and they have been recognized and admitted as evidence in courts of law thousands of times.

Medical News

ARKANSAS.

State Medical Society Meeting.—In the report of this society, published in THE JOURNAL, May 26, it was stated that Dr. Morgan Smith recommended the administration of menthol in the treatment of uncinariasis. We are informed that Dr. Smith did not recommend the administration of this drug in the treatment of uncinariasis, in fact, did not touch on the treatment of the disease, as the subject was arranged in the form of a symposium as follows: "Prevalence of Uncinariasis in Arkansas, Etiology, Symptomatology and Pathology," Morgan Smith, Little Rock; "Diagnosis, Prognosis, Prophylaxis and Treatment," W. S. Stewart, White Oak. The mistake of the correspondent who sent us the report of the meeting probably arose from confusion of menthol with thymol which was recommended by Dr. Stewart.

CALIFORNIA.

Personal.—Dr. and Mrs. W. Jarvis Barlow, Los Angeles, are taking a trip to Alaska.——Dr. Trusten P. Peery, Yuba City, has been appointed physician of Sutter County.——Dr. John E. Hubble, Lordsburg, has gone to Chicago for two months.

A Correction.—Dr. Oswald M. Justice, Los Angeles, whose death by suicide was reported in a portion of the issue of THE JOURNAL of January 20, writes under date of May 29 as follows:

> I am alive and well and have never been convicted of any crime nor sentenced to any imprisonment. I am now, and for several years have been, practicing my profession in Los Angeles. I was greatly surprised and shocked to read the article in question. It is untrue and libellous. It is needless to say it has inflicted on me and my many friends great mortification and distress, and has done me irreparable injury, as well as injure my reputation and my business.

We regret that this error occurred. The fact is, however, that after only a few copies of THE JOURNAL containing the notice had been printed, it was realized that the source of the information was not sufficiently authentic without further verification and the item was at once removed.

Commencement.—The annual graduating exercises of the College of Physicians and Surgeons, Los Angeles, were held June 6. A class of three was graduated. Dr. Charles W. Bryson presented the diplomas, and Dr. James P. Booth delivered an address on "The Vicissitudes of the Young Practitioner."——At the annual commencement exercises of the College of Physicians and Surgeons of San Francisco, May 17, a class of 29 was graduated. Dr. David A. Hodghead, dean and secretary of the college, announced the names of the graduates, and Dr. Winslow Anderson, president of the college, conferred the degrees.

ILLINOIS.

Personal.—Dr. Bruce D. Parrish, Mattoon, has been appointed physician to the Odd Fellows' Home.——Dr. W. M. Avery, Compton, has been appointed physician for the Paw Paw district of Lee County.

Podstata Goes to Elgin.—Dr. Vaclav H. Podstata, superintendent of the Cook County Institutions, Dunning, has resigned to accept the superintendency of the Illinois Northern Hospital for the Insane, Elgin, made vacant by the resignation of Dr. Frank S. Whitman. He assumes his new duties on July 1.

Investigation at Kankakee.—The grand jury, which for two weeks has been investigating the charges of cruelty and gross mismanagement of officials of the Illinois Eastern Hospital for the Insane, Hospital, adjourned June 15, after submitting a report which sets forth that all except one of the alleged cases of mistreatment were found to be baseless. An indictment was found against an attendant who had assaulted a deaf and dumb patient.

Chicago.

Commencement.—At the commencement exercises of Rush Medical College, June 13, 52 students received the degree of doctor of mdicine, and Dr. Roswell Park, Buffalo, N. Y., delivered the annual address.

Annex to St. Luke's.—The plans for the George Smith memorial addition to St. Luke's Hospital have been completed. The building will be six stories in height, with a frontage of 135 feet on Michigan Avenue. It will have 112 private rooms, a number of which are to be arranged in suites, with private baths. The building is designed to afford accommodation for the superior grade of private patients.

Health Report.—The mortality for the week ended June 16 is, with one exception, the lowest on record for June. During the week 436 deaths were reported, or 87 less than for the previous week. This is equivalent to an annual death rate of 11.09 per 1,000. Consumption heads the death list for the first time in several months with 60 deaths; pneumonia caused 50 deaths; violence (including suicide), 38; acute intestinal diseases, 33; nephritis, 28, and nervous diseases, 22. Two deaths were reported from insolation.

Personal.—Drs. Ludvig Hektoen, W. A. Evans and Maximilian Herzog have been appointed to represent the trio of civil investigators of the Union Stock Yards. The object of this committee is to investigate sanitary conditions at the stock yards.——Drs. Harold N. Moyer and Frank Allport were given the degree of LL.D. at the annual commencement of Notre Dame (Ind.) University, June 14.——Dr. Daniel A. K. Steele, president of the College of Physicians and Surgeons, was given the degree of LL.D. at the commencement exercises of the University of Illinois, Champaign, June 13.

INDIANA.

Laboratory Closed.—The Laboratory of Pathology and Bacteriology of Indiana University closed for the summer vacation, June 10. Since its opening in the spring, the laboratory has received for examination more than 20 pathologic specimens a week from the physicians of the state. It is hoped that in the summer of 1907 and thereafter arrangements will be made so that the closing of the laboratory in summer will be unnecessary.

Academy of Medicine Meeting.—At the semi-annual meeting of the Fort Wayne Academy of Medicine, May 31, Dr. George W. McCaskey read a paper on the "Relation of Diseases of the Gastrointestinal System to Conditions of Hypertension," which he read before the International Medical Congress at Lisbon. The following officers were elected and installed: President, Dr. William Ranke; vice-president, Dr. Adam L. Schneider; secretary, Dr. Alfred Kane, and treasurer, Dr. Allen Hamilton.

Win from State Board.—Dr. Mary A. Whery, Fort Wayne, whose license to practice medicine was revoked for alleged participation in an illegal operation, and who appealed to the circuit court, had a decision rendered in her favor, June 2.——The State Board of Medical Registration and Examination has filed in the circuit court a motion to modify the judgment in the proceedings instituted by it against Dr. Nelson B. Ross, Muncie, whose license was revoked a few weeks ago. The judgment shows a finding against the board, which desires the record to show a dismissal of the case.

Personal.—Dr. Albert E. Bulson, Jr., Fort Wayne, secretary of the Section on Ophthalmology of the American Medical Association, has sailed for Europe, and expects to visit Berlin, Zurich, Würzburg, Paris and London.——Dr. W. H. Mainwaring, professor of pathology, Indiana University, will give a course of 24 lectures on pathologic physiology before the students of Rush Medical College, Chicago, during the summer quarter, and will assist in the regular class work in general pathology in the University of Chicago.——Dr. James H. Walker, Henryville, who was operated on for appendicitis in Louisville, June 9, is reported to be improving.——Dr. Samuel N. Hamilton, Connersville, has been elected medical director of the Grand Army of the Republic for Indiana.—Dr. Clifford H. Mayfield, Indianapolis, has been installed assistant surgeon of the Indiana State Soldiers' Home, Lafayette, vice Dr. Logan Stanley, resigned.——Dr. D. F. Davis, New Albany, has gone to Europe.——Dr. Clarence Province, Franklin, has been elected a member of the city school board.——Drs. Chester C. Funk and Francis A. Mitchell have been appointed members of the New Albany board of health, and Dr. Funk has been made secretary of the board.——Drs. James M. Dinnen and L. Park Drayer, Fort Wayne, Dr. N. Howard Thompson, Wabash, Dr. Laughlin O. Malsbury, Peru, and Dr. John P. Hetherington, Logansport, have been appointed surgeons for the Fort Wayne & Wabash Valley Traction Company.

KENTUCKY.

Personal.—Dr. and Mrs. J. N. MacCormack, Bowling Green, sailed for Europe on the *Majestic*, June 13. They will spend three months abroad.——Dr. Hugh M. McCullough, Louisville, has been appointed sanitary health inspector, vice Dr. Llewellyn P. Spears.——Dr. Hubbard K. Adamson, Maysville, was taken suddenly ill while attending the meeting of the Kentucky State Railway Surgeons at Richmond, May 30.

MARYLAND.

Personal.—Dr. Harry S. Jarrett has resigned as resident physician of the Endowood Sanatorium for Consumptives in Towson, and will be succeeded by Dr. A. M. Forster of New Haven, Conn.——Dr. Thomas S. Cullen has resigned from the staff of the Cambridge Hospital and has been succeeded by Dr. Guy L. Hunner.——Dr. Charles A. Wells, ex-mayor of Hyattsville, was presented by his friends with a silver punch bowl, May 30.——Dr. William S. McPherson, Catoctin Furnace, has been appointed justice of the peace for Frederick County.

Baltimore.

Commencement.—At the annual commencement exercises of Johns Hopkins University a class of 84 was graduated. Seven members of the class were women.

Monument to Bosley.—A granite monument is being erected in the Prospect Hill cemetery at a cost of $1,500 to the memory of the late Dr. Grafton M. Bosley.

Meat Inspection a Farce.—Dr. John S. Fulton of the State Board of Health charges that the meat inspection in Baltimore is a farce. He states that he knows of sick and disabled animals having been killed and sold for food.

Alumni Meeting.—The twelfth annual banquet of the Maryland University Alumni Association, Washington Branch, was held June 8. The following officers were elected: Dr. Otho M. Muncaster, president; Drs. William L. Robins and William N. Souter, vice-presidents; Dr. W. M. Simpkins, secretary and treasurer, and Dr. Wilson P. Malone, corresponding secretary.

Personal.—Dr. Charles H. Bunting of Johns Hopkins has been elected professor of pathology at the University of Virginia, and Dr. Reed Hunt, formerly of Johns Hopkins, but now of the United States Public Health and Marine-Hospital Service, has been made professor of physiology in the same institution.——Dr. Benjamin T. Winchester has returned from Europe.——Dr. G. Milton Linthicum was given the degree of M.A. by St. John's College, Annapolis.——Dr. F. S. Carey has been appointed resident physician at Elkins, W. Va.

MASSACHUSETTS.

Banquet to Old Physician.—On May 31 the physicians of Lowell celebrated the fiftieth anniversary of the entrance of Dr. William Bass into the practice of medicine by a banquet in his honor, over which Dr. George H. Pillsbury presided as toastmaster. An antique wall clock was also presented to Dr. Bass, the presentation address being made by Dr. John C. Irish.

State Society Election.—At the one hundred and twenty-fifth annual meeting of the Massachusetts Medical Society the following officers were elected: President, Dr. George W. Gay, Boston; vice-president, Dr. Leonard Wheeler, Worcester; treasurer, Dr. Edward M. Buckingham, Boston; recording secretary, Dr. Francis W. Goss, Roxbury; librarian, Dr. Edwin H. Brigham, Boston, and chairman of the committee of arrangements, Dr. George S. C. Badger, Boston.

McLeod Expelled.—At the annual meeting of the Massachusetts Medical Society, on June 13, in accordance with the by-laws, the secretary, Dr. Francis W. Goss, Roxbury, moved that the sentence imposed by the board of trials in the charges against Percy D. McLeod, Boston, be imposed, and that Dr. McLeod be expelled from the Massachusetts Medical Society. The motion was unanimously carried, and Dr. McLeod was disbarred from membership on the ground of "conduct unbecoming a physician and member of the society."

MISSISSIPPI.

Mississippi to Have Medical College.—Work has begun on the building for the Mississippi Medical College, Meridian, to be opened next fall. The institution has been incorporated with a capital of $25,000, by Drs. N. L. Clarke, M. J. Lowry, J. E. Neal and others. The following are announced as the medical members of the board of trustees: Drs. W. W. Hamilton, J. R. Tackett and Thomas A. Barber, Meridian; G. H. McNeil, Newton, and Robert S. Curry, Columbus.

Mississippi Medical and Surgical Association.—This association, an organization of the colored physicians of the state, held its sixth annual meeting at Natchez, April 25 and 26. The following officers were elected: Dr. Albert W. Dumas, Natchez, president; Drs. Edward P. Brown, Greenville, and Dr. A. J. Lopez, vice-presidents; Dr. L. P. Burbridge, secretary, and Dr. Nichols, Okolona, treasurer. At the close of the meeting a banquet was given, over which Prof. G. W. Brumfield presided as toastmaster.

State Association Meeting.—The annual meeting of the Mississippi State Medical Association was held in Jackson, April 17, 18, 19 and 20, under the presidency of Dr. Edward H. Martin, Clarksdale. The association was welcomed to Jackson by Bishop Charles B. Galloway of the Methodist church, father of the health officer of Jackson, and Dr. T. P. Lockwood, Crystal Springs, responded. In his annual address the president reported the work done by the association during the past year, showing its growth and advancement. Tuberculosis was the subject of a symposium in which Dr. W. A. Evans of Chicago read a paper on the prevention of the disease, Dr. H. Wernicke Gentles, Chicago, a paper on the early diagnosis of the disease, and Dr. H. L. Sutherland, Rosedale, one on tuberculosis among the negroes. A feature of one session was the paper by Dr. Joseph H. White, United States Public Health and Marine-Hospital Service, on the permanent eradication of yellow fever and malaria, which was read by Dr. Peter W. Rowland, Oxford. The following officers were elected: President, Dr. Walter W. Crawford, Hattiesburg; vice-presidents, Drs. John W. Young, Grenada, John R. Tackett, Meridian, and Elbert A. Cheek, Arcola; secretary, Dr. Lee T. Fox, Benela (re-elected); treasurer, Dr. John F. Hunter, Jackson (re-elected); delegate to the American Medical Association, Dr. John Darrington, Yazoo City, and alternate, Dr. Hugh H. Haralson, Vicksburg. The association will meet in Gulfport in April, 1907.

NEW JERSEY.

Diphtheria Closes School.—Owing to the prevalence of diphtheria among the pupils of Cherry Street school, Elizabeth, the school has been closed by order of the board of health.

Physician Wins Suit.—In a suit for $20,000 damages brought by George Lees, North Plainfield, against Dr. Albert Wickman, Newark, for alleged improper treatment in applying a plaster cast for spinal curvature, the jury, on May 25, returned a verdict of no cause of action.

New Staff for Hospital.—The following have been appointed members of the staff of St. Joseph's Hospital, Paterson: Drs. Edward F. Denner, William Kerr and Charles J. Kane, surgical department; Drs. Charles M. Campbell, James O'Donnell and Charles H. Scribner, medical department, and Dr. James W. Atkinson, ophthalmologic department.

Personal.—Dr. Samuel D. Mayhew, Bridgeton, was operated on for appendicitis, May 8.——Dr. W. Blair Stewart has been elected first vice-president of the Atlantic City board of trade.——Dr. Benjamin Gutmann has been appointed health officer of New Brunswick, vice Dr. Staats V. D. Clark.——Dr. Frederic J. Hughes has been appointed school physician of North Plainfield vice Dr. J. Hervey Buchanan.

Free Antitoxin Bill Vetoed.—The governor on June 8 vetoed the bill providing for the free distribution of antitoxin by the state to individuals unable to pay for the remedy. His reasons

are that it is the function of the municipality and not of the state to supply necessities to the poor, and, further, that physicians should not be compelled to risk the loss of practice by designating what patients are or are not indigent.

Aid for Physicians' Families.—The twenty-fourth annual report of the Society for the Relief of Widows and Orphans of Medical Men of New Jersey shows that during 1905 four deaths occurred, and claims amounting to $724.25 were paid to the widows. The permanent fund has been increased by nearly $1,000 and now amounts to $6,573.12. The receipts for the year were $1,659.72, and the disbursements $1,264.50.

Hospital Seeks Relief.—The trustees of the Cooper Hospital, Camden, have appeared before the city council business committee in an effort to have the property owned by the institution exempted from taxation. It was shown that the income of the hospital was about $15,000 and that the taxes amount to about $5,000 a year. During 1905, 1,026 emergency cases were treated, 18,500 persons were cared for in the dispensary, and practically all the southern part of New Jersey is dependent on the institution.

NEW YORK.

Resolutions Regarding Dr. Weigel's Death.—At a special meeting of the Rochester Academy of Medicine, June 1, resolutions were unanimously adopted setting forth the loss sustained by the Academy in the untimely death of Dr. Louis A. Weigel, its president and one of its charter members.

Centennial of County Society.—The Medical Society of the County of Ulster will celebrate its one hundredth anniversary June 26 at the court house, Kingston, N. Y. Dr. Albert Vander Veer, Albany, will speak on "The Advancement of Medicine and Surgery During the Past Century"; Hon. John J. Linson, Kingston, on "Expert Medical Testimony." Hon. G. D. B. Hasbrouck, Kingston, will discuss "The Physician in Politics", and Drs. E. H. Loughran and A. H. Mambert, Kingston, will give the history of the society.

NORTH CAROLINA.

Communicable Diseases.—During April measles was reported in 41 counties, whooping cough in 34, smallpox in 29, typhoid fever in 24, diphtheria in 13, influenza in 8, scarlet fever in 6, cerebrospinal meningitis in 4, mumps in 3, and chickenpox in one county.

Released on Bond.—Dr. Joseph B. Matthews, recently convicted for killing his wife with strychnin at Greensboro, and sentenced to imprisonment for 20 years, has been released under bond of $5,000, and has been taken to a sanitarium near Baltimore, to be treated for the morphin habit.

PENNSYLVANIA.

Cornerstone Laid.—The cornerstone of the Passavant Memorial Home for the Care of Epileptics at Rochester was laid June 7.

New Hospital.—The new Columbia Hospital, Wilkinsburg, erected by the United Presbyterian Women's Association at a cost of more than $200,000, was formally opened June 1.

New Health Board.—The health board of Freeport has organized with Dr. Robert L. McCurdy as president, Dr. Charles A. Rogers, vice-president, and Dr. L. Walker Schnatterly, secretary and treasurer.

Illness and Accidents.—Dr. James P. Gilligan, Wilkesbarre, underwent an operation for appendicitis at Mercy Hospital, May 30.——Dr. James M. Gelwix, Upper Strasburg, is critically ill at his home.

Military Appointments.—Dr. P. Francis Gunter, Scranton, has been appointed assistant surgeon of the Thirteenth Infantry, N. G. Pa.——Dr. Wiliam E. Keller, Scranton, has been reappointed surgeon of the Thirteenth Infantry, N. G. Pa.——Dr. S. E. Ralston has been appointed surgeon of the Eighteenth Infantry, N. G. Pa., with the rank of major, vice Major C. C. Wiley, Pittsburg, appointed brigade surgeon and assigned to the staff of General John A. Wiley.

Personal.—Dr. G. R. S. Carson has been appointed surgeon in the eye, ear, nose and throat department of the Pottsville Hospital, vice Dr. George H. Halberstadt.——Dr. Samuel R. Crothers, mayor of Chester, has been appointed local surgeon for the Philadelphia, Wilmington & Baltimore Railroad, succeeding the late Dr. F. Farwell Long.——Dr. Joseph D. Findley, Altoona, has been appointed representative of the State Department of Health for Blair County.——Dr. and Mrs. S. Harper Smith, McKeesport, celebrated the twenty-fifth anniversary of their wedding, June 3.

Philadelphia.

Hospital Wing Dedicated.—The new five-story addition to St. Agnes' Hospital was dedicated May 29 by Bishop Prendergast, with impressive ceremony. The new wing contains accommodations for 180 private patients and cost $350,000.

Medical Inspectors Injured.—Drs. Elmer G. Whinna and Charles A. Groff, assistant city medical inspectors, are confined to their homes by injuries received while attempting to alight from street cars.

University Commencement.—The one hundred and fiftieth annual commencement exercises of the University of Pennsylvania were held in the Academy of Music, June 13. More than 500 students received diplomas and the annual address to the graduating class was delivered by Prof. John B. McMasters. The medical degree was conferred on a class of 102.

Personal.—Dr. William W. Keen has been elected a trustee of Vassar College to fill the vacancy caused by the death of Dr. Edward Lathrop.——Dr. Louis Starr sailed for Europe on the *Celtic*, June 15.——Dr. John M. Swan sailed for Europe, June 16.——Dr. Susan Rogers Corson, Lansdowne, sailed for Europe on the *Friesland*, June 9.——Dr. Boardman Reed has moved to Alhambra, a suburb of Los Angeles, Cal.

Jefferson Alumni Meeting.—The Alumni Association of Jefferson Medical College held its annual meeting June 1, at which the following officers were elected: President, Dr. W. M. Late Coplin; recording secretary, Dr. Charles S. Barnes; corresponding secretary, Dr. Aller G. Ellis; Dr. Randle C. Rosenberger, treasurer, and vice-presidents representing every state of the union, Hawaii, the Philippine Islands, the Army and the Navy.

Health Report.—The total number of deaths reported for the week aggregated 414, a decrease of 82 from the number reported last week, and a decrease of 7 from the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 16; measles, 6; pertussis, 9; diphtheria, 4; consumption, 55; cancer, 25; apoplexy, 23; heart disease, 39; acute respiratory disease, 26; enteritis, 34; Bright's disease, 31; suicide, 4; accidents, 15, and marasmus, 5. There were 234 cases of contagious disease reported, with 21 deaths, as compared with 282 cases and 32 deaths reported in the previous week.

Woman's College Notes.—Dr. Clara Marshall has resigned the chair of therapeutics in the Woman's Medical College of Pennsylvania, to take effect June 1, 1906. Although the dean has always been a member of the faculty, the trustees, on recommendation of the faculty, have appointed Dr. Marshall as dean. The title of the chair of materia medica and therapeutics has been changed to that of materia medica, therapeutics and clinical medicine, and Dr. Arthur A. Stevens has been appointed professor.——Of 93 men and women who took the competitive examination for admission to the Philadelphia Hospital and who were placed on the eligible list, the highest average obtained was 82.2, and a graduate of the Woman's College obtained the fourth place, with the mark of 81.6.——Dr. Mary J. Martin secured third place in the examination by the State Board of Examiners of North Carolina in a class of 132. The highest average obtained was 94 2/7, and Dr. Martin's average was 93 6/7.

VIRGINIA.

Personal.—Dr. R. C. Brunk, first assistant physician of the Central State Hospital, Petersburg, has resigned, and has been succeeded by Dr. Robert S. Talbot.

Commencement.—The eighty-second annual commencement exercises of the University of Virginia, Medical Department, Charlottesville, were held June 10, when a class of 21 was graduated.

Personal.—Dr. Edward W. Finn, Dedham, has been appointed town physician for 1906 and 1907 by the overseer of the poor.——Dr. Arthur B. Lamb of Harvard University has been appointed director of the Havemeyer Laboratory of Chemistry, New York University, vice Dr. Maurice Loeb, resigned.

GENERAL.

American Association of Pathologists and Bacteriologists.—The sixth annual meeting of this association was held at the Johns Hopkins University, May 19. The following officers were elected for the ensuing year: President, Dr. Welch; vice-president, Dr. A. S. Warthin; treasurer, Dr. H. U. Williams; secretary, Dr. H. C. Ernst.

CALIFORNIA RELIEF FUND.

The following contributions are acknowledged:

INDIVIDUAL CONTRIBUTIONS.

Anders, H. S., Philadelphia	$ 4.00
Barclay, R. D., Cerro Gordo, Ill.	1.00
Cheesman, W. S., Auburn, N. Y.	10.00
Johnson, Russell H., Philadelphia	5.00
Lindsay, Kate, Boulder, Colo.	2.00
Musser, John H., Philadelphia	25.00
Parrach, James, Philadelphia	10.00
Physicians of Morristown, Pa.	110.00
Perkins, William M., Louisiana	5.00
Roberts, E. G., Vermont	2.00
Sharpe, A. H.	5.00
Seebold, H. B.	5.00

SOCIETY CONTRIBUTIONS.

Chickasaw County Medical Society (Iowa)	$ 14.00
Eaton County Medical Society (Michigan)	10.00
Hudson County Medical Society (New Jersey)	75.00
Maricopa County Medical Society (Arizona)	28.15
Piedmont Medical Association (Virginia)	25.00
Rock Island County Medical Society (Illinois)	$ 25.00
Somerset County Medical Society (Pennsylvania)	15.00
Southern District Medical Society (North Dakota)	20.00
Tawant County Medical Society (Texas)	28.00
Teaching Society for Vacation Courses (Berlin)	25.00
Winnebago County Medical Society (Wisconsin)	50.00
York County Medical Society (Pennsylvania)	140.00

Pulaski County Medical Society (Arkansas), $42.00:

Cantrell, G. M. D.	$2.50	Stark, L. R.	$5.00
Christian, R. B.	2.00	Stinson, H. C.	2.50
Dibrell, J. L.	1.00	Sweetland, A. E.	2.00
Gibson, L. P.	5.00	Thorne, E. C.	1.00
Gray, Oscar	1.00	Vaughan, Lincoln	2.00
Lindsay, R. W.	5.00	Vinsonhaler, F.	5.00
McLain, M. D.	1.00	Watkins, A.	2.00
Meek, E.	1.00	Watkins, J. G.	1.00
Scott, A. H.	1.00	Witt, C. E.	1.00
Snodgrass, W. A.	1.00		

Shreveport Medical Society (Louisiana), $94.50:

Abramson Louis	$2.50	Lawton, W. B.	$5.00
Alexander, S. Y.	2.50	Ledbetter, W. M.	2.50
Barrow, S. C.	2.50	Lloyd, T. P.	1.00
Boaz, T. T.	2.50	Mohler, D. A.	2.50
Blanchard, J. A.	2.50	O'Leary, J. F.	2.50
Chandler, G. C.	2.50	Penick, R. M.	2.50
Calloway, J. M.	2.50	Pirkle, L. H.	2.00
Dowling, Oscar	5.00	Purnell, M. R.	5.00
Egan, J. C. and W. L.	1.00	Reisor, A. J.	2.50
Frater, F. J.	5.00	Schumpert, T. E.	5.00
Gray, R. A.	2.50	Selby, J. A.	2.50
Gray, R. H.	2.50	Smith, M. F.	2.50
Handah, E. B.	2.50	Sutherlin, W. K.	2.50
Hicks, S. H.	2.50	Turmont, F. S.	5.00
Hunt, Randall	5.00	Willis, J. C.	2.50
Lawrason, G. B.	2.00		

Ste. Genevieve County Medical Association (Missouri), $6.00:

Andre, M.	$1.00	Meyer, A. G.	1.00
Hertlich, C. J.	.50	Rutledge, G. M.	1.00
Hinch, F. E.	1.00	Wilkins, J. A.	.50
Lanning, R. W.	$1.00		

Chicago Medical Society (additional)			$118.00
Albro, Merlin Z.	$ 2.00	Kirby, Wm.	$ 5.00
Alderson, J. J.	10.00	Landau, David R.	2.00
Barnes, Charles	2.00	McHugh, Thomas	2.00
Bellstein, F. W.	2.00	McLaughlin, G. L.	2.00
Bell, George	2.00	McPherson, P.	2.00
Bessette, F. S.	2.00	Mix, Louis	10.00
Betz, Hugo	2.00	Naffz, E. S.	2.00
Brintell, —	2.00	Oulman, A.	1.00
Conant, P. B.	2.00	Parsons, William	2.00
Cotton, A. C.	10.00	Piper, E.	2.00
Feimlee, S. T.	2.00	Pischczak, John	2.00
Fridman, S. I.	5.00	Porterfield, W. I.	2.00
Friend, C. F.	2.00	Sachtliben, E. A.	2.00
Gary, I. C.	2.00	Schoolman, M.	2.00
Haley, R.	2.00	Stoeffhaas, L. H.	2.00
Hepburn, J. C.	5.00	Streich, —	2.00
Hultgen, —	2.00	Tischart, P. J.	2.00
Isaacs, Lewis J.	2.00	Tyrnen, Richard J.	2.00
Jamieson, J. K.	2.00	Vonala, W. J.	1.00
Johnson, L. O.	5.00	Zaleski, J. P.	2.00
Kahn, H.	2.00	Zurawski, K. A.	2.00

Total	$ 899.65
Previously acknowledged	$10,926.40
Grand total	$11,826.05

[In a previous list of the Pennsylvania societies the contribution of Dr. Alfred Gordon, Philadelphia, $2.00, was not mentioned.]

CANADA.

Hospital for Infectious Diseases.—Plans have been issued for a $6,000 hospital for infectious diseases at Peterboro, Ont.

British Columbia Medical Association.—The annual meeting of the British Columbia Medical Association will be held in Vancouver, August 1 and 2.

Nova Scotia Reciprocity with Great Britain.—The province of Nova Scotia is the first to seek medical reciprocity with the United Kingdom under amendment to the medical act of 1905.

Birth Rate in Montreal.—There is no race suicide in Montreal. During the week ended June 2, 196 births were registered in that city, the average being about 130. One hundred and two were males and 94 females.

Hospital Sunday.—Sunday, May 20, was hospital Sunday in all churches in Victoria, B. C. The money collected will be devoted to the erection of a maternity ward in connection with the Royal Jubilee Hospital of that city.

Queen's University, Kingston, Ontario.—The Ontario government at its recent session made a grant of $50,000 to the medical department of Queen's University, Kingston, Ont. The money will be used for a new laboratory building to house the departments of physiology, pathology, bacteriology and public health.

University News.—Convocation was held at Toronto University on the afternoon of June 8.——There were 99 candidates in final medicine this year at McGill University, of whom all but 7 were successful in their examinations. Mr. R. S. McArthur of Summerside, P. E. I., was the winner of the Holmes gold medal for the highest aggregate in all subjects.

Personal.—Dr. D. J. Gibb Wishart, Toronto, has returned home from attending the meeting of the American Medical Association at Boston.——Dr. Bruce L. Riordan, Grand Trunk surgeon at Toronto, has returned from a trip to Ireland.——Dr. C. J. Fagan, secretary of the Board of Health of British Columbia, has taken action against a Victoria newspaper to restrain it from using his name in connection with the advertisement of a certain "patent medicine" which he had analyzed and which he stated contained no poison.

The Ontario Medical College for Women Closed.—The Ontario Medical College for Women has gone out of existence. In future women desiring to study medicine in Canada will be provided with instruction by the medical department of the University of Toronto. The question of the co-education of medical students in the provincial university will be taken up by the university faculty shortly and full arrangements perfected for the reception of women. It is likely that special dissecting rooms will be provided. The Ontario Medical College for Women had been in existence for 22 years. During those years it has turned out 121 graduates. The first term commenced in the fall of 1883 with one student in attendance. The free dispensary for women, established in 1899 in connection with the college, will be continued. Dr. R. Barrington Nevitt has been dean for a number of years.

FOREIGN.

Physicians in French Chamber of Deputies.—Since the recent elections the French Chamber of Deputies numbers 46 physicians among its members and 9 pharmacists.

Cerebrospinal Meningitis in Germany.—It is announced by the *Allg. med. Cent.-Ztg.* that there have been 864 cases of epidemic cerebrospinal meningitis in Prussia since January 1, with 392 deaths. The majority have occurred in the Oppeln district, 585 cases, with 283 deaths.

Testimonial to Brouardel on His Retirement.—As mentioned recently, the professor of legal medicine at Paris, Paul Brouardel, is to retire to private life this spring. A subscription has been opened to present him with a souvenir tablet on the occasion of his retirement. Subscriptions of any amount will be received. They should be sent soon to Dr. Logez-Duc, secretary of the fund, rue de Mauberge 81, Paris X.

Cerebrospinal Meningitis in Glasgow.—Several cases of cerebrospinal meningitis have occurred in Glasgow, Scotland, during the past few weeks, and the health committee is considering the advisability of including it in the list of notifiable diseases. With this object in view, the committee has circularized the medical profession of the city to obtain details of the number of cases which have occurred during the last twelve months.

Treatment of Whooping Cough with Chloroform.—It is announced from Paris that Dr. H. de Rothschild has witnessed the abatement of the spasmodic cough in a child with whooping cough on whom he was operating for dislocation of the hip joint. Before the operation the child had averaged 39 attacks of coughing in the 24 hours, but has not had a single attack since. He has since treated 9 other children with unusual severe whooping cough by having them inhale a mixture of chloroform and oxygen for five minutes. In 2 the attacks have not recurred; in the others they dropped from 29 to 12, not returning after the fourth day. In the others the cure was not complete for several days.

Hydrophobia in Germany.—The official figures for Prussia in 1904 have recently been published. It seems that 365 persons

were bitten during the year by rabid or supposed rabid animals, including 5 cats, 6 cattle, 1 horse, 2 pigs and 211 dogs. All but 35 of the indiyiduals applied for treatment at the Berlin Institute for Infectious Diseases. Eight of the total number developed hydrophobia and died; 2 of these had not received any treatment, 1 had been treated by local disinfection alone, and 5 had taken the regular Pasteur course of treatment. In one of the latter group death occurred 218 days after the injury.

German Society for Prevention of Venereal Disease.—The Berlin branch of the German Preventive Society held a public meeting recently in the city hall building. Oppenheim delivered an address on "Sexual Diseases and Nervous Affections", and Rosenthal on the "Action of Alcohol in Relation to Sexual Diseases." Heller concluded the proceedings with an earnest appeal for the foundation of a home for syphilitic infants, similar to the one founded by Welander at Stockholm, which has done such good service in segregating the victims of inherited syphilis and mitigating or entirely curing their disease while safeguarding the public.

Proposed Free International Sanitarium at Carlsbad for Physicians.—The local medical society has presented a petition to the Carlsbad authorities asking that an international sanitarium be founded at Carlsbad for needy physicians. The petition states that the spa owes its renown to the appreciation by medical men generally of its courses of mineral waters and their systematic application. If a sanitarium with 20 rooms could be erected, 140 physicians could be given a four weeks' course of the waters during the season, April 1 to October 1. The petition adds that such an establishment would combine the humane with the practical and useful, and would win still more friends for the spa. Last year nearly 60,000 persons took the regular course of treatment, with 150,000 transient guests.

To Reduce Possibility of Infection in Abdominal Operations.—Theilhaber writes to the *Muench. med. Wochft.* to relate the great improvement in his results since he has adopted the plan of a second disinfection before attempting to ligate a pedicle in his operations. He presents evidence to prove that operations requiring ligature of a pedicle have a higher percentage of infection than other operations, even much more protracted ones, in which there is no pedicle to be ligated. When he reaches the stage of ligating the pedicle he closes the abdominal wound with forceps and disinfects his hands anew, then opens a hitherto untouched vessel containing a fresh set of instruments for the ligature. He either dispenses with assistance at this stage or requires his assistants to disinfect their hands anew.

International Congress for "Occupation Affections."—The completion of the Simplon tunnel is being celebrated by Italy with various international congresses. An international exhibition of hygiene is now in progress at Milan, and the first international congress for occupation affections opened last week at the same place. Celli led the discussion on the professional affections of workers in tobacco, and Bruns and Perroncito discussed miners' anemia. The medical senator, De Cristoforis, presided over the congress. In an editorial in the *Gazzetta degli Ospedali*, Maragliano hails it as "another step toward the realization of the political medicine which is coming to be the spirit of modern medicine." He declares that medicine can not hold aloof from politics much longer. He uses the term politics not in the sense of aspiring for power, but as "the exalted and noble effort to devote one's energies to promoting the welfare of the nation and safeguarding the vital interests of the citizens. Political medicine should be the principal factor in protecting wage-earners against insidious or manifest infirmities dependent on the exercise of their trade." He rejoices that Italy has taken the lead in summoning this international conference on the subject.

Precipitation Test of Strength of Roentgen Rays.—G. Schwartz of Vienna demonstrated at a recent meeting of the local medical society a method of measuring the strength of the Roentgen rays which is based on the precipitation of calomel, as a chemical reaction to the rays, in a mixture of ammonium oxalate and corrosive sublimate. This mixture is a clear fluid which, sheltered from the light, keeps indefinitely. Exposure to daylight or to the Roentgen rays causes precipitation of calomel. The amount precipitated is determined by centrifuging in a graduated capillary tube. Three mm. of the precipitate in the capillary tube corresponds to about the strength of a Holzknecht unit. The *Wiener klin. Wochft.* for May 31 contains his detailed description and comparison of this technic with the usual methods of testing the strength of the rays, especially with the Freund-Hardy-Wilcox iodoform-chloroform colorimetric test. The latter has the disadvantage of being a subjective test, depending on the observer's estimation of color. The change in the tint, after exposure to the rays, continues progressively after the rays have been withdrawn. Schwartz states that his technic allows the measurement of one-ninth or even one-twenty-seventh of the minimal effectual therapeutic dose of the rays.

LONDON LETTER.

Pasteurized Milk and Infant Feeding.

The fact that several of the large London dairy companies are supplying pasteurized milk without any indication that the milk has been so treated has been discovered in the following manner: At a children's hospital the medical staff decided to use pure, fresh milk unaltered by heat or preservatives or otherwise. Special precautions were taken to insure the purity of the milk, which was to be supplied in sealed and sterilized bottles and kept on ice. A large dairy company undertook to do this and was supposed to have done so for 18 months. Then it was discovered that for 12 months the milk had been pasteurized. The company, when taxed with breach of contract, expressed regret, but said they had acted on high medical authority and that pasteurized milk was safer for infants than milk not so treated. At another children's hospital there were under care three cases of scurvy for which fresh cow's milk, raw meat juice, scraped potato and lemon juice were given. In none of the cases did the usual speedy resolution of the subperiosteal hematoma occur. That three consecutive cases of scurvy should take this extraordinary course led to an inquiry. It was discovered that the dairy company to the hospital had been supplying pasteurized instead of fresh milk without informing the hospital authorities. On the substitution of fresh for pasteurized milk the children began to improve.

Jubilee of the Society of Medical Officers of Health.

The jubilee meeting of the Society of Medical Officers of Health was held recently. The president, Sir Shirley Murphy, delivered his presidential address on "The Medical Officer of Health, 1856-1906." He contrasted some of the problems that confronted the medical officer of health at the time of the foundation of the society in 1856 with those which faced him in the present day. In that period the death rate in England and Wales had fallen 18 per cent.—the male death rate 16 and the female 20 per cent. The death rate from preventable diseases had fallen 42 per cent. Medical officers of health must always be prepared to widen the horizon of their work. Already they possess a knowledge of disease prevention which goes far beyond that available for the early members of the society and that knowledge must rapidly grow.

Correspondence

Newspaper Tactics and the "Patent-Medicine" Question.

ST. LOUIS, June 11, 1906.

To the Editor:—In the St. Louis *Republic* for June 6 appeared the following paragraph: "At the meeting of the American Medical Editors' Association, what was termed 'the unwise agitation against medical advertising and proprietary medicines,' was strongly denounced. Dr. Kenneth W. Millican, of the *Medical Review*, St. Louis, said: 'What should be insisted on in the advertising world is that the advertising should be honest. I can not join in this outcry which has been raised against patent-medicine advertising. The spirit of commercialism is rampant, and it must be regarded by the journals. When those ends are sought honestly they are proper enough. The aim of professional men is rendering service, and any reasonable means to that end is proper. There is no sound reason why physicians should oppose advertising.'"

Now, as one sentence in this passage attributes to me a statement the exact opposite of the position I have always taken, I addressed to the St. Louis *Republic*, on June 6, the following letter:

June 6, 1906.

To the Editor, St. Louis "Republic," City:

Sir:—In your issue for June 6, in a dispatch dated Boston, Mass., June 5, you publish a statement concerning my paper read at the American Medical Editors' Association, at Boston, which in one particular entirely reverses the position that I took. Your correspondent makes me say: "I can not join in this outcry which has been raised against patent-medicine advertising." This statement is

such a garbled report of what I actually did say that I must request you to give me an opportunity of correcting it. It is obvious that the passage which your correspondent has, I am afraid deliberately, misrepresented is the following: Speaking of the question of the advertising of proprietary remedies—so-called "ethical" remedies because they profess to be advertised to the profession alone—I stated, "but we (i. e., medical editors) can not consistently join in the outcry that has been properly raised—and it is immaterial whether that outcry is due to a single-minded devotion to the public good or is simply the crafty use of a worthy object for purely selfish purposes—against patent medicines and nostrums that prey on the public to its detriment, so long as we do not hold fast to the first principles in regard to those preparations that appeal to us for our sanction." In other words, so far from saying that I can not join in the outcry against patent nostrums, I take the position that we all ought to join in that outcry, but that to do that effectively medical editors should agree on a principle whereby the rectitude of a proprietary medicine may be judged before its advertisement is accepted for a reputable medical journal; and I proceed to instance the principle which has been in force since the beginning of this year by the *St. Louis Medical Review*, in the following words: "We, therefore, shall not accept in future, and we have advised all our present advertisers that we shall not renew for 1906 the advertisement of any remedy that does not give its essential constituents so far that the physician using it may know, or can ascertain by reference to a Dispensatory or a standard text-book of therapeutics, its physiologic action and therapeutic character; and, if it contains drugs of pronounced potent physiologic effects or toxic character, the amount thereof that he is giving."

The whole gist of my argument, therefore, instead of being a statement that "I could not uphold the outcry against the nostrums," was an urging on medical editors to purge their own advertising columns so that all might take part in this outcry with greater consistency and cleaner hands. But I further urged moderation, common sense, a just regard for the legitimate interests of all parties, the public and the manufacturer as well as the physician, and a freedom from hysteria or blind slashing out at random.

Yours very truly, (Signed.) KENNETH W. MILLICAN.

On June 8 I received the following reply:

June 7, 1906.

Dear Doctor Millican:—Your letter of the 6th in relation to a dispatch from our correspondent in Boston has been received and will have due attention. I feel sure, however, that he had no motive or intent in placing a misconstruction on your paper.

Yours very truly,
(Signed) ——News Editor.

Dr. Kenneth W. Millican, City.

On receipt, in deference to the disclaimer as to motive, I authorized by telephone the omission of the words "I am afraid deliberately" in reference to the correspondent's misrepresentation. Considering the injurious nature of the misrepresentation, I had a right to expect a prompt and immediate publication for my repudiation of the statement ascribed to me. It is now five days since the statement was made, but I have seen no retraction so far. When it does appear, if it appears at all, it will be too late to correct the false impression created by the original paragraph. There may be many points in which the *Review* may take issue with the American Medical Association or its JOURNAL, but at least we fight fair and do not state one thing in our columns and try to curry favor by stating its opposite under circumstances in which that opposite might possibly be more popular.

KENNETH W. MILLICAN,
Editor *St. Louis Medical Review*.

The Advertising of the Battle Creek Sanitarium Company.

OFFICE OF
THE BATTLE CREEK SANITARIUM.

BATTLE CREEK, MICH., June 15, 1906.

To the Editor:—My attention was called a few days ago to an article which appeared in your columns from the pen of Dr. Pusey, criticising the Battle Creek Sanitarium because of certain advertisements which are published in newspapers over the name of the Battle Creek Sanitarium Co., Ltd. I desire to call your attention to the fact that the Battle Creek Sanitarium Co., Ltd., and the Battle Creek Sanitarium are two entirely independent institutions. The Battle Creek Sanitarium is incorporated under the charitable statutes of Michigan as the Michigan Sanitarium and Benevolent Association. The Battle Creek Sanitarium Co., Ltd., is a commercial manufacturing firm doing business in Battle Creek, which some years ago acquired by purchase the food business formerly conducted by the Battle Creek Sanitarium.

Enclosed you will find a copy of a letter written by me to the said Battle Creek Sanitarium Co., Ltd., and also a copy of their reply. I will be greatly obliged if you will publish these letters, together with this letter, in your columns, feeling that this explanation is due to the readers of THE JOURNAL who have read Dr. Pusey's criticism. J. H. KELLOGG.

BATTLE CREEK, MICH., June 12, 1906.

BATTLE CREEK SANITARIUM CO., Ltd.,
Battle Creek, Mich.

Gentlemen:—Several physicians have called my attention to an article which recently appeared in THE JOURNAL of the American Medical Association severely criticising the advertising matter which is being sent out by your company and implicating the Battle Creek Sanitarium in the matter.

It is my duty, as superintendent of the Battle Creek Sanitarium, to call your attention to the fact that when the trade rights to the food business formerly carried on by the Battle Creek Sanitarium were conveyed to you by a sale on Dec. 25, 1902, it was with the distinct understanding that the manufacture and sale of these foods should be conducted in a thoroughly ethical manner, and that the advertising matter should be of such a character that no intelligent or scrupulous physician would have any reason for complaint. It was distinctly understood that the copy prepared for advertising matter should be submitted to me, or to some other medical man who might be designated by the board of directors of the Battle Creek Sanitarium, to be criticised before being sent out, so that the reputation of the Battle Creek Sanitarium as an ethical institution should be thoroughly protected. The Battle Creek Sanitarium management would not have disposed of its trade-marks and other business interests connected with the manufacture of foods under any other conditions.

I was shocked and ashamed when my attention was called to the article from Dr. Pusey, and especially when I afterward learned that this advertisement, or one similar to it, had been published in periodicals of such character that no reputable institution could afford to be represented in their columns. I consider Dr. Pusey's censure entirely just in every particular, with the one exception that it does not apply to the Battle Creek Sanitarium, but rests wholly on the management of the Battle Creek Sanitarium Company, Ltd. It is manifest that you have neglected to comply with the special agreement which was entered into for the protection of the Battle Creek Sanitarium, and which was necessary because of the similarity of your name to that of the sanitarium. If you had submitted the copy for the advertisement complained of for inspection, it certainly would have been condemned. Since my attention has been called to the matter, I have learned that other announcements, through circulars and otherwise, which you have been sending out, contain many objectionable phrases and statements, which are not in harmony with the spirit of the understanding above referred to.

I am now writing you at the request of the board of directors of the Battle Creek Sanitarium to ask that you will suppress all publications of the sort complained of, and that you will hereafter, in accordance with your agreement, submit all advertising copy for inspection, and that you will so modify the name of your company that the public will not be in danger of confusing your business with that of the Battle Creek Sanitarium. The action requested of you is necessary for the protection of the good name of the Battle Creek Sanitarium, which has always conducted its business in a strictly ethical way, and has given no countenance to, or had any sympathy with, unethical and unprofessional methods of appealing to the public.

We request that you will take prompt and thorough-going action in relation to this matter. Respectfully.

J. H. KELLOGG.

BATTLE CREEK, MICH., June 14, 1906.

J. H. KELLOGG, M.D., Battle Creek, Mich.

Dear Sir:—Your favor of June 8 received. We regret to be obliged to acknowledge our remissness in the matter to which you call our attention. Our only apology is the fact that business duties have crowded us to such an extent that we have trusted the preparation and placing of our advertising matter to our advertising agents more than we should have done, and so we were not aware that the general instructions which we had given and which we believed to be in harmony with the agreement entered into with the sanitarium, were not being strictly carried out. We frankly admit our oversight in this matter and will immediately comply with each of the requests made by you and will see that hereafter there is no reasonable ground for complaint.

Assuring you that we have no sympathy with the unprincipled methods of advertising commonly employed by nostrum vendors and certain manufacturers of proprietary food products, and that we desire to conform in the strictest manner with both the letter and the spirit of the agreement to which you refer, in the interests of our own business as well as yours, we remain,

Very truly yours,
BATTLE CREEK SANITARIUM FOOD CO.
M. W. WENTWORTH, President.

P. S.—Kindly note that our firm name has been changed so that there can be no possible confusion of our business with yours in the public mind.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending June 16, 1906:

Kulp, John S., surgeon, promoted to rank of major, to date from May 26, 1906.

Sweazey, V. E., asst.-surgeon, left Army General Hospital, Washington Barracks, D. C., on leave of absence, to include July 1, 1906.

Hallock, H. M., surgeon, sick leave of absence extended two months.

Page, Henry, asst.-surgeon, assignment to duty at the U. S. Military Prison, Fort Leavenworth, Kans., revoked, and ordered to Fort Clark, Texas, for duty.

Fuller, Leigh A., asst.-surgeon, relieved from duty at Fort Clark, Texas, and ordered to the U. S. Military Prison, Fort Leavenworth, Kans., for duty.

Gray, Wm. W., deputy surgeon-general, left chief surgeon's office, Headquarters Department of the Gulf, Atlanta, Ga., on sick leave of absence.

Kirkpatrick, Thos. J., asst.-surgeon, left Fort Moultrie, S. C., en route to Fort McPherson, Ga., for temporary duty.

Robbins, C. P., asst.-surgeon, left Madison Barracks, N. Y., on ten days' leave of absence.

Boyer, Perry L., asst.-surgeon, left from temporary duty at Oakland, Cal., with 2d Squadron, 1st Cavalry, en route to rejoin station at Fort Sam Houston, Texas.

Ekwurzel, Geo. M., asst.-surgeon, relieved from temporary duty at Army General Hospital, Washington Barracks, D. C., and ordered to Fort Hamilton, N. Y., for temporary duty.

Appel, D. M., deputy surgeon-general, detailed member of Army retiring board, San Francisco, vice Lieut.-Col. Louis Brechemin, deputy surgeon-general, relieved. Detailed member of examining board, San Francisco, vice Lieut.-Col. Louis Brechemin, deputy surgeon-general, relieved.

Marrow, Chas. E., asst.-surgeon, left from temporary duty at Army General Hospital, Washington Barracks, D. C., en route to rejoin station, Fort Monroe, Va.

Hicks, John R., contract surgeon, granted sick leave of absence for one month.

Brown, Ira C., contract surgeon, ordered to accompany a battalion of infantry from Fort Niobrara, Neb., to Fort McIntosh, Texas, and report for duty at that post.

Hereford, John R., contract surgeon, left Fort Caswell, N. C., and arrived at Fort Moultrie, S. C., for duty.

Cass, William E., contract surgeon, returned from duty at San Francisco, to his proper station, Vancouver Barracks, Wash.

Gardner, Fletcher, contract surgeon, relieved from duty June 20, at Fort Mansfield, R. I., and will then proceed home for annulment of contract.

Carpenter, Alden, dental surgeon, left Fort William H. Seward, Alaska, for duty at Fort Egbert, Alaska.

Rieta, Hugo C., dental surgeon, order for Philippine service revoked; will proceed home, Manitowoc, Wis., for annulment of contract.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, during the two weeks ending June 16, 1906:

Moore, J. M., P. A. surgeon, detached from the Naval Medical School, Washington, D. C., June 15, and ordered to report for examination for promotion, and then to await orders.

Shook, F. M., asst.-surgeon, detached from the Naval Hospital, Mare Island, Cal., and ordered to the Navy Yard, Mare Island, Cal.

Geiger, A. J., asst.-surgeon, detached from the Navy Yard, Mare Island, Cal., and ordered to Washington, D. C., June 15, for examination for promotion, and then to wait orders.

Meyers, G. M., and Dickens, J. W., asst.-surgeons, detached from the Naval Medical School, Washington, D. C., June 15, and ordered to report for examination for promotion, and then to wait orders.

Streets, T. H., medical director, detached from command of the Naval Hospital, Naval Home, Philadelphia, and directed to wait orders.

Pickrell, G., surgeon, ordered to the *Franklin*.

Kerr, D. B., surgeon, detached from the Naval Medical School, Washington, D. C., June 15, and ordered to the Naval Recruiting Station, Chicago, Ill.

Von Wedekin, L. L., surgeon, detached from the Naval Recruiting Station, Chicago, Ill., and ordered to wait orders.

Asserson, F. A., P. A. surgeon, detached from the Naval Medical School, Washington, D. C., June 14, and ordered to the *Arkansas* temporarily, and then home to wait orders.

Webb, U. R., P. A. surgeon, detached from the Naval Medical School, Washington, D. C., June 15, and ordered to the Naval Hospital, Portsmouth, N. H.

Shaw, H., asst.-surgeon, detached from the Naval Medical School, Washington, D. C., June 15, and ordered to the Naval Hospital, Philadelphia, Pa.

Michels, R. H., asst.-surgeon, detached from the Naval Medical School, Washington, D. C., June 15, and ordered to the Naval Recruiting Station, Kansas City, Mo.

Tyree, F. W., acting asst.-surgeon, detached from the Naval Recruiting Station, Kansas City, Mo., and ordered home to wait orders pending expiration of term of appointment as acting asst.-surgeon, July 1, 1906.

Mayers, G. M., asst.-surgeon, detached from Naval Medical School, June 15, and ordered to Navy Yard, Washington, D. C.

Campbell, F. E., asst.-surgeon, ordered to the *Constellation* and to additional duty at Naval Training Station, Newport, R. I.

McConnon, G. H., asst.-1surgeon, detached from the *Constellation* and ordered to the *Missouri*.

Ryder, C. E., asst.-surgeon, detached from the *Missouri* and ordered home to wait orders.

Dennis, J. B., surgeon, detached from the Naval Proving Ground, Indian Head, Md., and ordered to command the Naval Hospital, Puget Sound, Washington, with additional duty at the navy yard at that place.

Munson, F. M., asst.-surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Proving Ground, Indian Head, Md.

Drake, N. H., medical inspector, detached from the Naval Academy and ordered to the Naval Hospital, New York, N. Y., for treatment.

Carpenter, D. N., surgeon, detached from duty in command of the Naval Hospital, Puget Sound, Wash., and ordered to the Asiatic Station, sailing from Seattle, Wash., July 6.

Curtis, E. E., acting asst.-surgeon, detached from the *Franklin* and ordered to duty at Camp Harrington Rifle Range, Williamsburg, Va.

Steele, J. M., medical inspector, ordered to the Naval Academy.

Jenness, B. F., asst.-surgeon, detached from the Naval Medical School, June 15, and ordered to the *Constellation* and to additional duty at the Naval Training Station, Newport, R. I.

Langhorne, C. D., surgeon, detached from the Naval Medical School, and ordered to the Naval Academy for temporary duty, and thence home to wait orders.

Decker, C. J., surgeon, detached from the *Alabama* and ordered home to wait orders.

De Valin, C. M., surgeon, detached from the Naval Recruiting Station, Baltimore, Md., and ordered to the *Alabama*.

Marsteller, E. H., surgeon, detached from the Naval Recruiting Station, St. Louis, and to Naval Recruiting Station, Baltimore, Md.

Abeken, F. G., asst.-surgeon, to Naval Recruiting Station, St. Louis.

McGuigan, J. H., pharmacist, detached from the Naval Dispensary, New York, and to the Marine Barracks, New York.

McMahon, J., pharmacist, detached from the Marine Barracks, New York, and to the Naval Dispensary, New York.

Service for the seven days ending June 13, 1906:

Carmichael, D. A., surgeon, bureau letter of May 3, 1906, granting leave of absence for seventeen days, amended to read for fifteen days only.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the fourteen days ending June 13, 1906:

Irwin, Fairfax, surgeon, granted leave of absence for one month and twenty-five days, from July 9, 1906.

Carrington, P. M., surgeon, granted leave of absence for three days from June 4, 1906, under Paragraph 189 of the Regulations.

Williams, L. L., surgeon, granted leave of absence for one month and fifteen days, beginning July 16, 1906.

McIntosh, W. P., surgeon, granted extension of leave of absence for three days, from June 4, 1906.

Wertenbaker, C. P., surgeon, granted leave of absence for nine days, from June 5, 1906.

Rosenau, M. J., P. A. surgeon, granted leave of absence for one day, June 1, 1906, under Paragraph 189 of the Regulations.

Nydegger, J. A., P. A. surgeon, granted leave of absence for three months, from Aug. 10, 1906, with permission to go beyond sea.

Wickes, H. W., P. A. surgeon, granted leave of absence for two days, from June 5, 1906.

Wickes, H. W., P. A. surgeon, granted extension of leave of absence for three days, from June 7, 1906.

Moore, Dunlop, P. A. surgeon, granted leave of absence for two months, from May 7, 1906.

Wilson, R. L., P. A. surgeon, granted leave of absence for seven days, from May 28, 1906, under Paragraph 191 of the Regulations.

Wilson, R. L., P. A. surgeon, granted extension of leave of absence for seven days, from June 4, 1906.

Stimson, A. M., asst.-surgeon, granted leave of absence for seven days from May 25, 1906, under Paragraph 191 of the Regulations.

Rucker, W. C., asst.-surgeon, granted leave of absence for three days from June 5, 1906.

Hunt, Reid, Chief Division of Pharmacology. Detailed to attend the meeting of the American Medical Association at Boston, Mass., June 4-8, 1906.

Kastle, J. H., Chief Division of Chemistry, granted leave of absence for eleven days, beginning June 12, 1906.

Addis, W. E., acting asst.-surgeon, granted leave of absence for twenty-six days, from June 4, 1906.

Gray, R. H., Acting asst.-surgeon, granted leave of absence for thirty days, from June 16, 1906, and excused from duty without pay for sixteen days from expiration of above leave.

Gregory, George A., acting asst.-surgeon, granted leave of absence for seven days from June 4, 1906.

Haller, E. B., acting asst.-surgeon, granted leave of absence for two days from June 2, 1906.

James, William F., acting asst.-surgeon, granted leave of absence for thirty days, from Aug. 1, 1906, and excused for fifteen days without pay, from date of expiration of above-mentioned leave.

Nutt, A. W., acting asst.-surgeon, granted three days' leave of absence under Paragraph 210 of the Regulations.

Safford, V. G., acting asst.-surgeon, granted leave of absence for three days under Paragraph 210 of the Regulations.

Simonson, G. T., acting asst.-surgeon, granted leave of absence for two days, from June 5, 1906.

Stevenson, J. W., acting asst.-surgeon, granted leave of absence for thirty days, from June 11, 1906, and excused without pay for a period of two months, or so much thereof as may be necessary, without pay, from expiration of leave of absence.

Goodman, F. S., pharmacist, granted leave of absence for sixteen days, from June 18, 1906.

Richardson, S. W., pharmacist, granted leave of absence for ten days, from June 3, 1906.

Van Ness, G. J., pharmacist, relieved from duty in the Bureau and assigned to temporary duty in the Purveying Depot, Washington, D. C.

Glennan, A. H., assistant surgeon general, granted leave of absence for eight days from June 9, 1906.

Carmichael, A. D., surgeon, bureau letter of May 3, 1903, granting leave of absence for seventeen days, amended to read for fifteen days only.

Cobb, J. O., surgeon, granted leave of absence for ten days from June 25, 1906.

Smith, A. C., surgeon, granted leave of absence for one month from July 2, 1906.

Blue, Rupert, P. A. surgeon, assigned to special temporary duty in Washington, D. C., on board convened by executive order for the purpose of making sanitary inspection of certain public buildings and workshops, on completion of which to proceed to Norfolk, Va., and assume command of service.

Amesse, J. W., P. A. surgeon, granted leave of absence for six days from June 5, 1906, under Paragraph 191 of the Regulations.

Boggess, J. S., asst.-surgeon, granted leave of absence for seven days from June 9, 1906, under Paragraph 191 of the Regulations.

Stimson, A. M., asst.-surgeon, directed to report to medical officer in command, Stapleton, N. Y., for temporary duty.

Hamilton, H. J., acting asst.-surgeon, granted leave of absence for three days from June 12, 1906.

McKay, M., pharmacist, granted leave of absence for two days from June 1, 1906.

Carlton, C. G., pharmacist, granted leave of absence for twenty-nine days from June 10, 1906.

APPOINTMENTS.

Louis Schwartz, George C. Ballard and Elsworth Wilson appointed acting asst.-surgeons for probational periods of six months from date of oath.

V 19

BOARD CONVENED.

A board of medical officers was convened at Chicago, Ill., on June 12, 1906, for the purpose of making a physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon G. B. Young, chairman; Assistant Surgeon, R. T. Olson, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the two weeks ended June 15, 1906:

SMALLPOX—UNITED STATES.

California: Stockton, May 31, 3 cases; Roseville, May 24, 1 case.
District of Columbia: Washington, May 19-June 9, 20 cases, 1 death.
Florida: General, May 26-June 9, 22 cases; Jacksonville, 7 cases.
Georgia: Augusta, May 21-28, 2 cases; Sapelo Island, June 2-4, 1 case (imported).
Illinois: Cambridge, June 2-9, 10 cases; Chicago, May 26-June 9, 3 cases; Galesburg, 1 case.
Indiana: Indianapolis, May 20-June 3, 2 cases.
Kansas: Topeka, May 26-June 2, 1 case.
Louisiana: New Orleans, May 25-June 9, 36 cases, 1 death.
Missouri: Carthage, April 3-June 4, 10 cases; St. Louis, May 26-June 2, 1 case; Joplin, June 5, 5 cases (imported).
Nebraska: Omaha, May 26-June 2, 1 case.
New Jersey: Jersey City, May 27-June 3, 2 cases.
New York: Monroe, May 14, 1 case; New York, May 26-June 9, 11 cases, 3 deaths; Buffalo, May 1-30, 1 case.
North Carolina: Greensboro, May 26-June 2, 1 case.
Ohio: Cincinnati, May 25-June 8, 13 cases; Toledo, May 19-26, 1 case.
Oklahoma: Oklahoma City, May 26-June 9, 14 cases, 1 death.
Pennsylvania: Philadelphia, May 26-June 2, 1 case; Pittsburg, May 19-26, 4 cases; Lancaster, June 2-9, 1 case.
Tennessee: Memphis, May 19-June 6, 9 cases; Nashville, May 26-June 2, 1 case.
Texas: Houston, May 19-June 2, 2 cases.
Utah: Ogden, May 31, 2 cases.
Wisconsin: Appleton, May 26-June 9, 5 cases; La Crosse, May 19-26, 1 case; Milwaukee, June 2-9, 2 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, April 7-21, 4 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, April 21-May 5, 13 cases.
Argentina: Buenos Ayres, March 1-31, 68 cases, 52 deaths.
Brazil: Rio de Janeiro, April 22-May 13, 4 cases, 1 death; Pernambuco, April 15-30, 7 deaths.
Chile: Iquique, May 5-12, present.
Canada: St. Thomas, May 26-June 2, 6 cases; Toronto, May 12-June 2, 8 cases; Winnipeg, 1 case.
China: Hongkong, April 7-May 5, 30 cases, 17 deaths.
Germany: Bremen, May 12-26, 2 cases, 1 death.
Gibraltar: May 13-27, 6 cases, 1 death.
Great Britain: Bristol, May 12-19, 2 cases; London, May 29, 2 cases; Newcastle-on-Tyne, 2 cases; Hull, May 19-26, 1 case; Liverpool, 1 case.
Greece: Athens, May 13-28, 4 deaths.
India: Bombay, May 1-15, 8 cases, 16 deaths; Calcutta, April 21-May 5, 131 cases, 90 deaths; Kurachi, April 30-May 13, 48 cases, 16 deaths; Madras, April 28-May 11, 16 cases, 11 deaths; Rangoon, April 21-May 5, 35 cases, 28 deaths.
Italy: General, May 10-24, 59 cases.
Russia: St. Petersburg, April 29-May 12, 14 cases, 11 deaths; Moscow, May 5-19, 22 cases, 8 deaths; Odessa, May 12-26, 24 cases, 3 deaths.
Spain: Barcelona, May 13-30, 11 cases, 5 deaths.
Turkey: Constantinople, May 20-27, 1 death.

YELLOW FEVER—UNITED STATES.

Mississippi: Gulf Quarantine, June 4-6, 3 cases, on S. S. *Whitehall*, from Colon.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, May 6-13, 1 case, 3 deaths.
Cuba: Habana, June 7-12, 2 cases, 1 death.
Honduras: Piminota, May 19, 11 cases.
Mexico: Coatzacoalcos, May 19-26, 1 case, 1 death; Merida, May 13-26, 3 cases, 1 death.
Santo Domingo: La Vega, June 9, present.

CHOLERA—INSULAR.

Philippine Islands: Manila, April 7-21, 26 cases, 22 deaths.

CHOLERA—FOREIGN.

China: Hongkong, April 28-May 5, 1 case, 1 death.
India: Bombay, May 1-15, 18 deaths; Calcutta, April 21-May 5, 215 deaths.

PLAGUE—INSULAR.

Hawaii: Honolulu, June 3-4, 1 case, 1 death.
Philippine Islands: Manila, April 14-21, 1 case, 1 death.

PLAGUE—FOREIGN.

Australia: Brisbane, April 14-21, 2 cases, 1 death; Rockhampton, April 5-12, 4 cases, 1 death, April 14-21, 4 cases, 3 deaths.
Brazil: Rio de Janeiro, May 6-13, 1 case, 1 death.
China: Hongkong, April 7-May 8, 184 cases, 170 deaths.
Egypt: Beni Souf, Providence, May 14, 2 cases; Minieh Province, May 14-17, 8 cases, 4 deaths; Keneh Province, May 11-17, 7 cases, 10 deaths; Port Said, May 17, 1 death.
India: General, April 21-May 5, 33,747 cases, 28,929 deaths; Bombay, May 1-15, 1,517 deaths; Calcutta, April 21-May 5, 296 deaths; Karachi, April 30-May 5, 465 cases, 415 deaths; Rangoon, April 21-May 5, 125 deaths.
Japan: Formosa, April 1-30, 800 cases, 602 deaths; Kobe, April 14-May 8, 6 cases, 7 deaths.

Association News

THE BOSTON REGISTRATION.

List of Members Who Registered at the Boston Session.

The total registration at the Boston session was over 4,700, the largest in the history of the Association. The largest registration previously was 2,890, at Atlantic City in 1904. In addition to the over 4,700 names below, a few more than a score registered whose names are not given. These either have not forwarded credentials for membership or failed to fill out the card for publication. Below are given two summaries, one by sections and one by states.

REGISTRATION BY SECTIONS.

Practice of Medicine	1,363
Obstetrics and Diseases of Women	307
Surgery and Anatomy	1,006
Hygiene and Sanitary Science	103
Ophthalmology	257
Diseases of Children	160
Stomatology	93
Nervous and Mental Diseases	178
Cutaneous Medicine and Surgery	109
Laryngology and Otology	166
Pharmacology and Therapeutics	76
Pathology and Physiology	92
Registered without specifying any particular section	554
Marked more than one section	248

REGISTRATION BY STATES.

Alabama	28	Louisiana	17	Oklahoma	3
Arkansas	16	Maine	146	Oregon	10
Arizona	3	Maryland	67	Pennsylvania	433
California	37	Massachusetts	1478	Philippine Is.	1
Colorado	45	Michigan	111	Rhode Island	153
Connecticut	115	Minnesota	80	S. Carolina	15
Delaware	9	Mississippi	7	S. Dakota	12
Dist. of Col.	31	Missouri	72	Tennessee	49
Florida	4	Montana	6	Texas	33
Georgia	24	Nebraska	20	Utah	10
Hawaii	1	Nevada	2	Vermont	88
Idaho	1	New Hampshire	156	Virginia	33
Illinois	237	New Jersey	90	Washington	9
Indian Ter.	3	New Mexico	4	West Virginia	16
Indiana	110	New York	489	Wisconsin	68
Iowa	77	N. Carolina	18	Wyoming	1
Kansas	25	N. Dakota	9	Canada	4
Kentucky	49	Ohio	189	Other foreign	2

Practice of Medicine.

Abbott, S. W., Lawrence, Mass.
Abel, Wm. C., West Union, W. Va.
Achorn, John Warren, Boston.
Ackerman, John, Erie, Pa.
Acuff, S. D., Knoxville, Tenn.
Adams, Dut S., Rochester, Minn.
Adler, Harry, Baltimore, Md.
Alexander, Wm. H., Canonsburg, Pa.
Alexander, W. J., Marthasville, Mo.
Alguire, Annie, Belvidere, Ill.
Aikler, Stanislaus Joseph, Brooklyn Borough, N. Y.
Allard, L. D., Portsmouth, Ohio.
Allbee, E. S., Bellows Falls, Vt.
Allen, Carl A., Holyoke, Mass.
Allen, G. S., Lawrence, Mass.
Allen, J. Q., Montrose, Colo.
Allen, U., Jersey City, N. J.
Alter, J. G., New Kensington, Pa.
Alton, Charles D., Hartford, Conn.
Amerland, J. H., St. Louis, Mo.
Ames, John L., Boston, Mass.
Anderson, Alex. J., Newport, R. I.
Anderson, D. Bruce., Paris, Ky.
Anderson, Guy R., Barnesboro, Pa.
Anderson, Wm. E., Farmville, Va.
Andrews, Edward Austin, Newton Center, Mass.
Anders, James M., Philadelphia, Pa.
Angell, F. C., Randolph, Vt.
Aukeney, C. R., Philadelphia, Pa.
Annable, Edwin G., Concord, N. H.
Arkin, Louis, Roxbury, Mass.
Armstrong, E., Greenleaf, Kas.
Armstrong, T. E., South Boston, Va.
Arnold, Horace D., Boston, Mass.
Ashcraft, Samuel A., Mullen Hill, N. J.
Atkinson, A. Duval, Baltimore, Md.
Atwood, A. Wilson, Mt. Hermon, Mass.
Atwood, Charles F., Arlington, Mass.
Atwood, George M., Haverhill, Mass.
Atwood, J. W., Fiskhillon Hudson, N. Y.
Austin, Albert E., Medway, Mass.
Averill, Jesse H., Campello, Mass.
Axtell, John F., Newton, N. H.
Ayer, Silas Hibbard, Boston, Mass.
Babb, W. M., Allegheny, Pa.
Babcock, H. S., Danville, Ill.
Bachman, Gustavus A., Philadelphia, Pa.
Badger, George S. C., Boston.
Bailey, Samuel, Mt. Ayr, Iowa.
Baker, George L., Boston, Mass.
Baker, O. C., Brandon, Vt.
Baketel, R. v., Methuen, Mass.
Baldwin, W. D., Honolulu, Hawaii.
Ball, Clarence F., Rutland, Vt.
Ball, Tillinghast, New York, N.Y.
Bancroft, Edward E., Wellesley, Mass.
Banfield, F. L., Worcester, Mass.
Bannan, Theresa, Syracuse, N.Y.
Barber, Annette E., Glens Falls, N. Y.
Barber, Joseph De Vere, Westerly, R. I.
Barker, Lewellys, F., Baltimore,
Barker, Byron F., Bath, Me.
Barker, Christopher F., Newport, R. I.
Barnes, W. L., Lexington, Mass.
Barrett, F. E., Glencoe, Minn.
Barry, E. W., Whitinsville, Mass.
Barry, William F., Woonsocket, R. I.
Bartlett, Walter Oscar, Roxbury, Mass.
Bartol, John W., Boston, Mass.
Barton, E. R., Frazee, Minn.
Baskett, John N., Hannibal, Mo.
Bass, Wm., Lowell, Mass.
Bassett, M. Imogene, Cooperstown, N. Y.
Beach, Chas. C., Hartford, Conn.
Beal, Frederick E., New York,
Beals, Arthur L., Brockton, Mass.
Bean, F. W., Anthony, R. I.
Bean, J. Walter, West Medford, Mass.
Beatty, H. M., Trenton, N. J.
Beck, John T., Dayton, Ohio.
Beckett, H. C., Scottsburg, Va.
Becknell, I. J., Goshen, Ind.

Beauclerk, W. P., Concord, N. H.
Beazley, W. S., Richmond, Va.
Beck, Harvey G., Baltimore, Md.
Belknap, Lewis J., San Jose, Cal.
Bemus, Morris N., Jamestown, N. Y.
Bemus, Wm. M., Jamestown, N. Y.
Bennett, H. P., Lynn, Mass.
Bettmann, Henry Wald, Cincinnati, Ohio.
Bierwirth, J. C., Brooklyn, N. Y.
Bigelow, C. E., Leominster, Mass.
Bigelow, Enos H., Framingham, Mass.
Billings, Frank, Chicago, Ill.
Birkofer, Wm. J., Gothenburg, Neb.
Bixby, Josiah P., Woburn, Mass.
Black, Frank W., Ligonier, Ind.
Black, Thomas F., Providence, R. I.
Blair, Arthur W., Boston, Mass.
Blaisdell, George W., Manchester, Mass.
Blanchard, Benjamin S., Brookline, Mass.
Blanchard, F. N., Detroit, Mich.
Blanchard, F. R., Lakeview, Mich.
Blanchard, R. G., Dover, N. H.
Bliss, J. L., Holyoke, Mass.
Boehm, John C., St. Cloud, Minn. Minn.
Bogue, H. A., Richford, Vt.
Boland, Elisha S., Boston, Mass.
Bond, J. L., Uklah, Cal.
Bond, Willis G., Revere, Mass.
Bonney, C. H., Ludlow, Vt.
Bonney, Robert, East Boston, Mass.
Bouney, Sherman G., Denver, Colo.
Boone, John C., Wickliffe, Ky.
Bosworth, Truman D., Jr., Tewksbury, Mass.
Boucher, R. P., Providence, R. I.
Bourland, I. N., Equality, Ill.
Bouton, Otis Z., Fultonville, N. Y.
Bower, W. C., Lebanon, Kan.
Boyle, Blanche C., Portland, Me.
Boyle, John F., Lowell, Mass.
Bozoraky, Vacil D., Dunkirk, N. Y.
Brace, D. A., Quincy, Mass.
Bradbury, George A., Troy, N. Y.
Bradeen, F. B., Essex, Conn.
Braman, H. S., Homer, N. Y.
Brayton, Chas. E., Stonington, Conn.
Bridgman, B. N., Boston.
Briggs, Albert H., Buffalo, N. Y.
Brobeck, A. L., Hoopeston, Ill.
Brodbeck, G. H., Roann, Ind.
Broidrick, J. P., Boston.
Brooks, Robert H., Claremont, N. H.
Broughton, Henry W., Boston.
Brown, Charles H., Waterbury, Conn.
Brown, E. F., Groveton, N. H.
Brown, Everett J., Decatur, Ill.
Brown, Frank E., Baltimore.
Brown, Frederick N., Providence, R. I.
Browning, John S., Roxbury, Mass.
Brown, Windsor A., Worcester, Mass.
Brown, Wilfred G., Plymouth, Mass.
Brunker, James W., Riley, Ind.
Bruyère, John, Trenton, N. J.
Bryant, Clarence E., Hyde Park, Mass.
Bryant, Giles W., Somerville, Mass.
Buchanan, S. A., Philadelphia.
Buffum, William H., Providence, R. I.
Bullard, E. C., Jamestown, R. I.
Bundy, A. D., Osage, Iowa.
Burke, F. Edward, Wakefield, R. I.
Burdick, Frank E., Providence, R. I.
Burke, William H., Cambridge, Mass.
Burman, Thomas J., Boston.
Burnett, H. W., Providence, R. I.
Burnham, E. A., Boston.
Burnham, Melvin P., Ray Brook, N. Y.
Burroughs, H. S., Pittsburg.
Bush, J. Foster, Boston.
Bushnell, E. H., Quincy, Ill.
Bushnell, Homer, North Adams, Mass.
Butler, W. H., Fall River, Mass.
Butler, William H., Columbus, Ind.
Butterfield, C. E., Suncook, N. H.
Buxton, G. Edward, Providence, R. I.
Buzzell, Daniel F., Wilmington, Mass.
Byrne, T. J., Philadelphia.
Cabot, Richard C., Boston.
Caldwell, J. C., Buckfield, Me.
Callanan, Sampson A., Boston.
Campbell, A. D., Cleveland, O.
Campbell, B. F., Boston.
Campbell, Charles L., Sheraden, Pa.
Campbell, Donald, Butte, Mont.
Campbell, Edward, Providence, R. I.
Campbell, George R., Augusta, Me.
Canfield, Herbert H., Siloam Springs, Ark.
Capps, Joseph A., Chicago.
Carleton, C. G., Lawrence, Mass.
Carman, Russell D., St. Louis.
Carpenter, Edwin J., Corning, N. Y.
Carroll, Thos. F., Boston.
Carver, H. S., Marshfield, Vt.
Caspari, William, Baltimore.
Casselberry, C. M., Pottstown, Pa.
Cavanaugh, Thos. E., Holyoke, Mass.
Caverly, Charles S., Rutland, Vt.
Cecil, John G., Louisville, Ky.
Chace, W. H., Buffalo, N. Y.
Chamberlin, G. M., Chicago.
Chambers, H. L., Lecompton, Kan.
Champlin, John, Westerly, R. I.
Chaney, Herbert M., Sardinia, O.
Chandler, M. L., Barre, Vt.
Chapin, Clifford S., Gt. Barrington, Mass.
Chapin, Frederick W., Springfield, Mass.
Chapman, B. A., Springfield, Vt.
Chappell, J. W., Washington, D. C.
Charles, Orlando W., Bryantville, Mass.
Chase, Arthur B., Atchison, Kan.
Chase, Richard F., Boston.
Cheever, John H., Leominster, Mass.
Chesley, Alice M. M., Exeter, N. H.
Chesley, Andros P., Concord, N. H.
Chesley, Harry O., Dover, N. H.
Chestnut, James C., Philadelphia.
Childs, Alfred H., Dublin, N. H.
Chisholm, A. S. M., Bennington, Vt.
Chisholm, M. D., Westfield, Mass.
Chittick, W. R., Detroit, Mich.
Christopher, W. H., London, O.
Church, Thos. C., Valley Falls, N. Y.
Clark, E. J., Lowell, Mass.
Clark, G. Hardy, Waterloo, Iowa.
Clark, H. F., Hardin, Ohio.
Clark, Henry S., New York.
Clark, Margaret Vanpel, Waterloo, Iowa.
Clarke, I. J., Haverhill, Mass.
Clarke, J. J. Fred, Fairfield, Iowa.
Clarke, Robert C., Pittsburg, Pa.
Claytor, Thomas A., Washington, D. C.
Cleaves, E. G., Rockport, Mass.
Clemensen, P. C., Chicago.
Cobb, Oliver W., Easthampton, Mass.
Coburn, Irving S., Milton, Vt.
Cochrane, J. E., Valatie, N. Y.
Coffin, A. B., Boston.
Cogan, Joseph A., Boston.
Cogswell, George Proctor, Cambridge, Mass.
Cogswell, William, Boston.
Cole, J. Wesley, Baltimore.
Coleman, Edward T., Graymont, Ga.
Coleman, J. E., Doddsville, Miss.
Coleman, N. R., Columbus, Ohio.
Conard, George R., New Vienna, Ohio.
Conneen, Thomas F., Portland, Me.
Conner, Lewis A., New York.
Coolidge, John C., Boston.
Cooper, C. M., San Francisco, Cal.
Corman, Chas. A. E., Philadelphia.
Cornell, Walter S., Philadelphia.
Cornwell, E. S., La Salle, Mich.
Cowan, E. H., Crawfordsville, Ind.
Cox, Nathaniel D., Spencer, Ind.
Coxe, Dorran B., Riverside, R. I.
Crain, F. M., Redfield, S. D.
Cram, John W., Colerain, Mass.
Crane, A. Melville, Marion, Ohio.
Crane, S. Ellis, Syracuse, N. Y.
Cravens, M. H., Arlington, Tex.
Crockett, Sidney S., Nashville, Tenn.
Crooker, George H., Providence, R. I.
Cross, J. G., Minneapolis, Minn.
Cross, William P., Boston.
Crouch, Hugh T., Bardwell, Ky.
Crump, George A., New York.
Cummings, E. S., Lewiston, Me.
Cummings, F. R., Concord, N. H.
Cummings, M. A., Fall River, Mass.
Cunningham, Thomas E., Cambridge, Mass.
Currier, W. Eugene, Leominster, Mass.
Curry, Edwin A., Danville, Pa.
Curry, Grove P. M., Mount Kisco, N. Y.
Curtice, L. E., Buffalo, N. Y.
Curtis, G. Lenox, New York.
Curtis, William G., Quincy, Mass.
Cushing, Arthur A., Brookline, Mass.
Custer, D. D., Philadelphia.
Custer, Henry F., Somerville, Mass.
Cutler, Elbridge G., Boston.
Cutter, Charles K., Somerville, Mass.
Dadmun, Eliza J., Boston.
Daniel, Vivian, Watertown, Mass.
Daland, Judson, Philadelphia.
Daly, Jeremiah J., North Andover, Mass.
Dana, Harold W., Boston, Mass.
Dancer, Chas. W., Stroh, Ind.
Darling, Eugene A., Cambridge, Mass.
Darragh, Edmiston, Winnetka, Ill.
Darrow, Chas. E., Rochester, N. Y.
Dart, Frederick H., Niantic, Conn.
Davidson, Kallman M., Boston.
Davis, Ernest E., Avon, Ill.
Davis, John L., Cincinnati, Ohio.
Davies, Josiah S., Granville, N. D.
Davis, N. S., Chicago.
Day, Frank L., Providence, R. I.
Day, W. E., Clarksville, Iowa.
Dean, Ralph D., Taunton, Mass.
Dearborn, Edmund G., Keene, N. H.
Dearing, Howard S., Boston.
Deaig, Blanche A., Boston.
Dennett, Charles A., Arlington, Mass.
Denny, Francis P., Brookline, Mass.
Dewis, John William, Boston.
De Wolf, Halsey, Providence, R. I.
Dexter, Fred F., Granby, Mass.
Deziel, Godfrey, Minneapolis, Minn.
Dickes, Philip, Greenville, Ohio.
Dierking, Albert W., Oolitic, Ind.
Dillon, J. R. Marmaduke New Orleans, La.
Dock, George, Ann Arbor, Mich.
Dodge, Wm. W., Boston.
Dodin, Henry A., New York.
Doerr, John E., Mt. Vernon, Ind.
Donoghue, Daniel F., Holyoke, Mass.
Dorman, A. B., Winthrop, Mass.
Donoghue, James C., Boston.
Douglass, E. P., Groton, Conn.
Douglass, John A., Amesbury, Mass.
Dow, David C., Cambridge, Mass.
Dow, George F., Reading, Mass.
Downey, Charles J., Springfield, Mass.
Downing, Chas. H., Everett, Mass.
Downs, J. A., Glidden, Iowa.
Doyle, John H., Grafton, W. Va.
Drake, George H., Pontiac, Mich.
Draper, Arthur D., Boston.
Drake, Chas. B., West Lebanon, Neb.
Drake, Wm. A., North Weymouth, Mass.
Drawbaugh, J. H., Shiremanstown, Pa.
Dreksm, Richard E., Holyoke, Mass.
Driscoll, Daniel, Portland, Me.
Drummond, Edward A., Newark, N. J.
Drummey, N. D., Boston.
Dryer, D. W., La Grange, Ind.
Duff, John, Charleston, Mass.
Dugdale, R. B., South Bend, Ind.
Drew, Fred, Boston, Mass.
Dugan, Thomas J., Indianapolis, Ind.
Dunbar, F. H., Boston.
Duncan, E. M., Marshall, Ill.
Dunham, Henry B., Rutland, Mass.
Dunham, Kennon, Cincinnati, O.
Dunning, Z. F., Philmont, N. Y.
Durham, Jas. R., Warren, Pa.
Duryee, Albert P., Brockton, Mass.
Dwyer, Wm. J., Cambridge, Mass.
Eastman, Alexander C., Southboro, Mass.
Eastman, H. H., Jamestown, N. Y.
Eastman, Theodore Jewett, Boston.
Eaton, Albert M., Philadelphia.
Eaton, W. W., Danvers, Mass.
Eberspacher, F. J., Pana, Ill.
Edsall, David L., Philadelphia.
Edson, Carroll E., Denver, Colo.
Egan, J. J., Gloucester, Mass.
Eggleston, E. L., Battle Creek, Mich.
Eichberg, Joseph, Cincinnati, O.
Eldridge, David S., Boston.
Eliot, Ellsworth, New York.
Ellenberger, J. Wesley, Harrisburg, Pa.
Ellinger, T. J., Philadelphia.
Elliott, Arthur R., Chicago.
Elliott, James T., East Liverpool, Ohio.
Elsner, Henry L., Syracuse, N. Y.
Emerson, Charles P., Baltimore.
Emerson, Ernst B., Tewksbury, Mass.
Emery, George E., Worcester, Mass.
England, Albert Charles, Pittsfield, Mass.
Engle, O. C., Scottdale, Pa.
Epler, E. G., Fort Smith, Ark.
Epting, R. B., Greenwood, S. C.
Erdman, W. B., Macungie, Pa.
Erdman, William S., Buckingham, Pa.
Evans, D. W., Scranton, Pa.
Evans, Earl W., Columbus, Ohio.
Evans, William, Philadelphia.
Eveleth, Charles W., Salem, Mass.
Everhard, Eleanora S., Dayton, Ohio.
Everhart, R. E., Clinton, Iowa.
Ewing, Wm. B., West Grove, Pa.
Fackler, G. A., Cincinnati, Ohio.
Faries, Clarence T., Narberth, Pa.
Fassett, Chas. Wood, St. Joseph, Mo.
Faulds, W. H., Kingston, Pa.
Favill, Henry B., Chicago.
Felch, T. A., Ishpeming, Mich.
Felker, Gertrude, Dayton, Ohio.
Ferguson, Edward H., Boston.
Fernandez-Ybarra, A. M., New York.
Finder, William, Jr., Troy, N. Y.
Finkelstein, Harry, Boston.
Fischer, O. E., Detroit, Mich.
Fish, E. J., South Royalton Vt.
Fish, Lewis, Fitchburg, Mass.
Fisher, P. E., Providence, R. I.
Fisher, T. J., West Newton, Mass.
Fisler, C. F., Clayton, N. J.
Fitch, Alpheus, Factoryville, Pa.
Fitz, R. H., Boston.
Fitzpatrick, John J., Charlestown, Mass.
Flanders, C. F., Manchester, N. H.
Fleming, Peter J., Boston.
Fleming, P. J., Cambridge, Mass.
Flewelling, Douglas S., Somerville, Mass.
Flint, E. P., Rockville, Conn.
Flower, W. Z., Gibbon, Minn.
Floyd, Cleaveland, Brookline, Mass.
Flynn, Henry L., Roxbury, Mass.
Foley, Timothy J., Worcester, Mass.
Foote, Charles J., New Haven, Conn.
Forchheimer, F., Cincinnati, O.
Foss, W. B., Ashley, Pa.
Fountain, J. H., Chapin, Ill.
Fountain, O. R., Boston.
Frame, Joseph, Rockland, Mass.
Framing, E. C., Galesburg, Ill.
Francine, Albert Philip, Philadelphia.
Frauenthal, Herman C., New York.
Freeman, Edward D., Osgood, Ind.
French, Charles H., Pawtucket, R. I.

V 19

Fruend, Hugo A., Ann Arbor, Mich.
Friedenwald, Julius, Baltimore.
Friedrick, Martin, Cleveland, O.
Frost, Edward L., Buffalo, N. Y.
Fuller, F. R., Pawtucket, R. I.
Fuller, G. E., Monson, Mass.
Fulton, Dudley, Los Angeles, Cal.
Furman, Davis, Greenville, S. C.
Fussell, M. H., Philadelphia.
Gage, Edward F., Winthrop, Mass.
Gage-Day, Mary, Kingston-on-Hudson, N. Y.
Gale, A. Ernest, Chicago.
Gale, Harold Adams, Winchester, Mass.
Gallison, Henry H., Cambridge, Mass.
Gallman, William J., South Boston, Mass.
Gammell, H. W., Madison, Wis.
Gammon, William, Galveston, Tex.
Gans, Dan'l W., Massillon, Ohio.
Gardner, John L., Rochelle, Ill.
Gardner, William S., New York.
Garretson, W. M., Anderson, Ind.
Gashwiler, J. Schooling, Novinger, Mo.
Gass, James, Sheffield, Pa.
Gaston, Mary E., Somerville, N. J.
Gaylord, Charles W., Brantford, Conn.
Généreux, Joseph O., Webster, Mass.
Gholston, W. D., Danielsville, Ga.
Gibbs, L. J., Chicopee Falls, Mass.
Gibson, C. R., Woodsville, N. H.
Gibson, Robert F., Somerville, Mass.
Gichner, Joseph E., Baltimore.
Gifford, Henry B., Juda, Wis.
Gillette, Arthur A., Rome, N. Y.
Gilbert, John, Fall River, Mass.
Gillis, J. E., Somerville, Mass.
Gilman, Louis L., Rochester, N. H.
Gleason, W. F., Providence, R. I.
Glendenning, Robert T., Manchester, Mass.
Gnagi, Wm. B., Monroe, Wis.
Gomperts, Louis M., New Haven, Conn.
Good, J. F., New Cumberland, Pa.
Goodall, Harry W., Boston.
Gore, David C., Marshall, Mo.
Gordon, John Alexander, Quincy, Mass.
Gorham, Fordyce C., Coudersport, Pa.
Gostanian, James, Sault Ste. Marie, Mich.
Gow, Frank F., Schuylerville, N. Y.
Graber, C. Lee, Cleveland, Ohio.
Grafton, Frank W., Concord, N. H.
Graham, Christopher, Rochester, Minn.
Graham, R. F., Greeley, Colo.
Grauk, W. V., Lawrence, Mass.
Granger, F. C., Randolph, Mass.
Graves, E. E., Penacook, N. H.
Graves, Frederick C., Bridgeport, Conn.
Green, Herlwyn R., Providence, R. I.
Green, W. A., Wauson, Wis.
Greene, Clark W., Binghamton, N. Y.
Greene, E. B., Chicago.
Greene, L. M., Bethel, Vt.
Greene, Ray W., Worcester, Mass.
Greenley, T. B., Meadow Lawn, Ky.
Greenwood, Arthur M., Marblehead, Mass.
Griffin, Arthur G., Malden, Mass.
Griffin, C. E., Fair Haven, Vt.
Griffin, Clifford H., Providence, R. I.
Grim, D. T., Reading, Pa.
Grimes, J. R., Montpelier, Vt.
Grimer, Loring, Swampscott, Mass.
Grothan, Georgiana, St. Paul, Neb.
Grouard, John S., Nantucket, Mass.
Grover, Arthur, Hyde Park, Mass.
Guild, Frank E., Windham, Conn.
Guinn, John William, Butte, Mont.
Gutshall, F. A., Blair, Pa.
Hagertly, G. R., Bar Harbor, Maine.
Hahn, E., Latonia, Ohio.
Haines, George B., Valley Falls, R. I.
Hale, L. L., Chebeague, Maine.
Hale, William, Gloucester, Mass.
Hall, Eldon N., Woodham, Ky.
Hall, George W., Chicago.
Hall, J. N., Denver, Colo.
Hall, R. M., Baltimore.
Hall, William Thomas, Tarentum, Pa.
Hallenbeck, O. J., Canandaigua, N. Y.
Halloran, M. J., Worcester, Mass.
Halsey, L. M., Williamstown, N. J.
Hamilton, G. Clarence, Louisville, Ohio.
Hamilton, J. H., Union, S. C.
Hamilton, Robert D., Newburyport, Mass.
Hanley, Francis J., Whitman, Mass.
Hannum, E. A., Cleveland, Ohio.
Hannum, Wm., Hatboro, Pa.
Hanson, C. W., Northwood Ridge, N. H.
Hanson, William C., Cambridge, Mass.
Happel, Thos. J., Trenton, Tenn.
Harding, G. T., Jr., Washington, D. C.
Hardman, Margaret Sabina, Pawtucket, R. I.
Hardy, Theodore E., North Vassalboro, Maine.
Hare, H. A., Philadelphia.
Haskins, Daniel S., Boston.
Harkness, Robert B., Houghton, Neb.
Hartland, Frank T., Waterloo, Ia.
Harle, John, Quincy, Mass.
Harpole, Winfield S., Chicago.
Harriman, David E., South Hadley Falls, Mass.
Harrington, Thos. F., Lowell, Mass.
Harison, J. E. Eliot, New York.
Harrison, Frank M., Napoleon, Ohio.
Hart, W. F., Camden, Maine.
Hartman, W. F., Swoope, Va.
Hartzell, Wm. H., Allentown, Pa.
Harvey, E. B., Boston.
Harvey, Edwin B., Providence, R. I.
Harwood, W. E., Eveleth, Miss.
Haskell, H. B., Auburndale, Mass.
Hatchett, John A., El Reno, Okla.
Hanrahan, John D., Rutland, Vt.
Hawes, John B., Boston.
Hawley, J. E., Burr Oak, Kan.
Hawley, W. H., College Corner, Ohio.
Hay, Charles H., Cleveland, O.
Hayes, Grosvenor L. T., Graniteville, Vt.
Hayes, Stephen W., New Bedford, Mass.
Hayden, Louis B., Livermore Falls, Maine.
Hayford, Ernest L., Chicago.
Hedrick, J. S., Dunkirk, Ohio.
Hellman, R. P., Emporium, Pa.
Hemingway, William Herbert, New York.
Henkle, Emanuel A., New London, Conn.
Herbst, H. H., Allentown, Pa.
Heritage, C. S., Glassboro, N. J.
Herrick, James B., Chicago.
Herrick, John F., Ottumwa, Ia.
Hersey, Freeman C., Boston.
Hersh, E. G., McComb, Ohio.
Hertz, Wm. J., Allentown, Pa.
Hewes, Henry F., Boston.
Hewitt, Adelbert, Saratoga Springs, N. Y.
Hickey, J. J., Peabody, Mass.
Hicks, L. N., Burlington, Wis.
Higgins, R. P., Cortland, N. Y.
Higgins, William Lincoln, South Coventry, Conn.
Hildreth, John L., Cambridge, Mass.
Hill, Edmund E., Suncook, N. H.
Hill, George S., Marblehead, Mass.
Hill, Roscoe, Epson, N. H.
Hillard, W. A., Westerly, R. I.
Hills, Charles E., South Natchez, Miss.
Hindle, William, Providence.
Hiner, S. B., Lima, Ohio.
Hinkiss, George, Boston.
Hobley, Thomas, Amherstburg, Ontario, Canada.
Hodges, J. W., Washington, D. C.
Hodges, Almon D., Boston.
Hodskins, M. B., Palmer, Mass.
Hoffman, Chas. E., Bolivar, N. Y.
Hogeboom, Wm. L., Troy, N. Y.
Holbrook, Bradbury, West Newton, Mass.
Holden, N., Southampton, Mass.
Holden, Timothy N., New York.
Holder, R. E., Columbus, Ind.
Holland, P. C., Bloomington, Ind.
Hollingshead, E., Pemberton, N. J.
Holmes, A. M., Denver, Colo.
Holmes, Howard F., Tewksbury, Mass.
Holt, Frank Hammett, Boston.
Holt, Oliver P., Cincinnati, O.
Holton, C. E., Bernardston, Mass.
Hood, W. H., Reno, Nev.
Hoover, P. D., Waynesboro, Pa.
Horn, J. A., Mauchchunk, Pa.
Howard, F. H., Williamston, Mass.
Howe, William A., Phelps, N. Y.
Howell, Wm. W., West Roxbury (Boston), Mass.
Hubbard, C. D., Parma, Mich.
Hubbard, Wm. S., Brooklyn, N. Y.
Huber, John B., New York.
Hunt, George E., Holyoke, Mass.
Hunt, S., East Providence, R. I.
Hunter, Chas. H., Minneapolis, Minn.
Hunter, Norman M., Hudson, Mass.
Hurd, E. F., New York.
Hurd, James T., Galeton, Pa.
Hushmouck, Ira D., Washington, D. C.
Huselton, William Sterling, Pittsburg, Pa.
Hutchinson, C. M., Cambridge, Mass.
Hutchinson, Woods, Arrowhead Springs, Cal.
Hutchinson, W. H., Childersburg, Ala.
Hutchison, J. C., Troy, N. Y.
Hyde, Fritz Carleton, Greenwich, Conn.
Iams, S. T., Waynesburg, Pa.
Illsley, Frederick R., Medford, Mass.
Infield, T. H., Hartford, Ohio.
Ingram, Mary de D., Brooklyn, N. Y.
Jack, Cecil McKee, Decatur, Ill.
Jack, Lewis H., West Newton, Mass.
Jacobs, Abraham, New York.
Jacobson, Aug., Chicago.
Jacoby, Douglas P. A., Newport, R. I.
Jackson, Alton A., Everett, Mass.
Jackson, Henry, Boston.
Jackson, H. B., Melrose, Mass.
Jackson, J. H., Fall River, Mass.
Jackson, James Marsh, Boston.
James, Walter B., New York.
James, William H., Pennsville, N. J.
James, W. S., Cleveland, Ohio.
Janeway, E. G., New York.
Jansen, F. I., Fonda, N. Y.
Jarvis, Fred J., Delta, Iowa.
Jenkins, Geo. F., Keokuk, Iowa.
Jennings, Gainor, West Milton, Ohio.
Jennings, S. D., Sewickley, Pa.
Johnson, A. R., Henderson, Ky.
Johnson, C. B., Batavia, Ill.
Johnson, Frank M., Boston.
Johnson, Frank S., Chicago.
Johnson, Orville E., Winthrop, Mass.
Johnson, William A., Lowell, Mass.
Johnston, James I., Pittsburg, Pa.
Johnstone, W. J., Boston.
Jones, Allen A., Buffalo, N. Y.
Jones, Clement R., Pittsburg, Pa.
Jones, Frank A., Memphis, Tenn.
Jones, Fred E., Quincy, Mass.
Jones, F. W., New Inswick, N. H.
Jones, W. Russell, Richmond, Va.
Jordan, John F., Peabody, Mass.
Joslin, Elliott P., Boston.
Jouett, Fred R., Cambridge, Mass.
Joy, J. A., Atlantic City, N. J.
Joy, L. Fowler, Fulton, N. Y.
Joyce, James H., Salem, Mass.
Judson, W. H., Danielson, Conn.
Jump, Henry D., Philadelphia.
Kahlo, Geo. D., Indianapolis and French Lick, Ind.
Kalayjian, D. S., Parker, S. D.
Karpeles, M. J., Philadelphia.
Kay, W. J., Lancer, Mich.
Keefe, D. E., Springfield, Mass.
Kegel, Ernest T., Walcott, Ia.
Keith, Halbert L., Milford, Mass.
Keller, F. G., Alexandria, Ind.
Kelley, Daniel H., Oldtown, Me.
Kellogg, Edward B., Boston, Mass.
Kelly, A. O. J., Philadelphia.
Kelly, Wm. D., Boston.
Kenefick, Thomas A., Newport, R. I.
Kennedy, A. L., Denver, Colo.
Kenney, John C., Sharon, Vt.
Kenney, W. C., Tewksbury, Mass.
Kenniston, Wm. B., Exeter, N. H.
Kent, J. B., Putnam, Conn.
Keyes, R. H., Hopedale, Ill.
Kilough, J. N., Woodlawn, Ala.
Kimball, Grace N., Poughkeepsie, N. Y.
Kimball, H. H., Minneapolis, Minn.
Kimberlin, A. C., Indianapolis, Ind.
Kimmell, J. A., Findlay, Ohio.
King, Charles P., Newark, Ohio.
King, W. S., Ashtabula, Ohio.
Kingsbury, Albert D., Boston.
Kinney, J. E., Denver, Colo.
Kinnicutt, Francis P., New York
Kirker, George A., Detroit, Mich.
Kistler, Geo. B., Newsomerstown, Ohio.
Kistler, H. B., Sunbury, Ohio.
Kite, Walter C., Milton, Mass.
Kittredge, Joseph, Brookline, Mass.
Kline, W. D., Allentown, Pa.
Klopp, Peter P., Philadelphia.
Knapp, Alfred A., Brimfield, Ill.
Knechl, Cyrus, Matawan, N. J.
Knickerbocker, Percy G., Boston.
Knight, Chas. S., Westboro, Mass.
Knight, Frederick I., Boston.
Kopfstein, F. P., Cleveland, O.
Kurtz, C. S., Malvern, Pa.
Laird, Arthur Turner, Albany, N. Y.
Lambert, Alexander, New York.
Lamson, William Judson, Summitt, N. J.
Lang, Herbert B., Dorchester, Mass.
Lanabee, Ralph C., Boston.
Lancaster, Sherman R., Cambridge, Mass.
Lane, Walter A., Milton, Mass.
Lape, Rushmore, Fair Haven, Vt.
Larned, Ezra Read, Chicago.
Larrabee, F. W., Black Island, R. I.
Larrabee, H. M., Tewksbury, Mass.
Latham, Daniel S., Auburn, R. I.
Lavallee, George Omer, Lowell, Mass.
Lawrence, G. H., Galesville, Wis.
Lawrence, W. E., North Haverhill, N. H.
Lawson, Geo. N., Middle Haddam, Conn.
Larned, I. B., Northampton, Mass.
Leary, William C., Springfield, Mass.
Lee, Walter A., Bellevue, Iowa.
Leech, J. W., Providence, R. I.
Leen, Thomas Francis, Charlestown, Mass.
Le Roy, I. D., Pleasant Valley, N. Y.
Leroy, Louis, Nashville, Tenn.
Leslie, Horace G., Amesbury, Mass.
Levison, Louis A., Toledo, Ohio.
Levy, J. Harris, Syracuse, N. Y.
Lewis, D. M., New Haven, Conn.
Lewis, James N., Ashaway, R. I.
Libby, Edward N., Roxbury, Mass.
Libby, J. H., East Weymouth, Mass.
Libman, Emmanuel, New York.
Lichty, John A., Pittsburg, Pa.
Lincoln, Merrick, Worcester, Mass.
Linder, A. W., Chicago.
Lindquist, Carl A., Boston.
Little, Abby U., Newburyport, Mass.
Littlefield, Anna M., New London, N. H.
Locke, Edwin A., Boston.
Lombard, Loring S., South Portland, Maine.
Long, C. R., Pierceton, Ind.
Long, Merritt Allen, Manchester, Mass.
Longee, Wm. W., Malden, Mass.
Longhran, Frederic William, New York.
Longfellow, Henry N., Boston.
Lord, Frederick T., Boston.

Loring, R. P., Newton Center, Mass.
Louria, Leon, Brooklyn, N. Y.
Lovell, C. D. S., Lynn, Mass.
Lowder, Lindsey T., Bloomington, Ind.
Lowman, John H., Cleveland, O.
Lumsden, W. J., Elizabeth City, N. C.
Lynn, J. F., Waseca, Minn.
MacCabe, Arthur, Gloucester, Mass.
Macdonald, Alexander A., Boston.
Macfarlane, R. F., New York.
Mack, Herbert, Pueblo, Colo.
Mack, Jonn A., Crompton, R. I.
Mackeen, Alfred A., Whitman, Mass.
Macknight, Adam S., Fall River, Mass.
MacLellan, Charles, Chicago.
Macomber, G. N., Denver, Colo.
MacQuaid, John F., Worcester, Mass.
Maher, Stephen J., New Haven, Conn.
Malaun, M. E., Carbondale, Pa.
Mandell, A. H., New Bedford, Mass.
Mann, E. S., Pennsylvania.
Marchand, J. F., Canton, Ohio.
Marcley, Walter J., Rutland, Mass.
Marcy, Alex., Jr., Riverton, N. J.
Marion, O. H., Boston.
Markham, E. W., Lee, Mass.
Marquart, O. M., Springfield, O.
Marsh, E. J., Paterson, N. J.
Marsh, W. C., Albion, Mich.
Martin, John Macleod, Boston.
Marvel, Philip, Atlantic, N. J.
Mason, H. P., Wilton Junction, Iowa.
Mathews, George S., Providence, R. I.
Maner, G. R., Warrenton, Ga.
Mayhew, Orland S., Vineyard Haven, Mass.
Maytum, W. J., Alexandria, S.D.
McArthur, J. H., East Barre, Vt.
McAdams, Wm. J., Pittsburg, Pa.
McAllester, J. J. H., New Bedford, Mass.
McBain, Wm. H., Malden, Mass.
McBurney, Chas. Fred, Altoona, Pa.
McCarthy, Timothy F., East Boston.
McCaskey, G. W., Ft. Wayne, Ind.
McCauley, Albert A., Boston (Brighton Dist.).
McClain, W. L., Scottsburg, Ind.
McCollin, S. Mason, Philadelphia.
McConnell, Chas. W., Altoona, Pa.
McConnell, T. E., Parnassus Pa.
McCormick, Horace G., Williamsport, Pa.
McCormack, R. J., Boston.
McCormick, Thos. P., Baltimore.
McCoy, Clem D., Kenton, Ohio.
McCready, R. J., Allegheny, Pa.
McCreery, Chas. R., Tacoma, Wash.
McCullough, R. G., Providence, R. I.
McDermott, Bernard F., Providence, R. I.
McDermott, Wm. V., Salem, Mass.
McDonald, W. J., Boston.
McGannon, Thomas G., Lowell, Mass.
McGavran, C. W., Columbus, O.
McGowan, J. D., Chicago.
McGregor, George W., Littleton, N. H.
McGuigan, Jno. I., Philadelphia.
McGuire, M. F., Montpelier, Vt.
McIlhanney, Wm. H., Easton, Pa.
McKay, James S., Potsdam, N. Y.
McKeen, Sylvester F., Allston, Mass.
McKenna, James C., Boston.
McKinnon, Charles L., McKees Rocks, Pa.
McKnight, W. B., Mansfield, Tex.
McLaughlin, E. M., Winona, Minn.
McLennan, Roderick, Quincy, Mass.
McLaughlin, Joseph I., Roxbury, Mass.
McPherson, William E., Somerville, Mass.
McQueeney, Francis J., Boston, Mass.
Mead, Louis Guy, Boston.
Meek, Edward, Argenta, Ark.
Melton, H. R., Wickliffe, Ky.
Mendelsohn, Louis, Dorchester, Mass.
Mercer, Frederick W., Chicago.
Meredith, W. E., Scottsville, Ky.
Merriam, F. H., Holbrook, Mass.
Merriam, Walter H., Cleveland,O.
Merrill, P. S., Waterville, Me.
Messer, C. C., Turners Falls, Mass.
Metcalf, Harold, Wickford, R. I.
Metts, Fred A., Ossian, Ind.
Meyer, H. E., Belmond, Ia.
Milan, Michael B., Providence, R. I.
Miller, Albert H., Providence, R.I.
Miller, A. I., Brattleboro, Vt.
Miller, Charles H., Boston, Mass.
Miller, DeWitt Clinton R., Mason and Dixon, Pa.
Miller, D. P., Huntingdon, Pa.
Miller, G. W., Bane, Vt.
Miller, Joseph L., Chicago.
Miller, Joseph S., York, Pa.
Miller, Walter Jones, Johnson City, Tenn.
Miller, Wm. Preston, Hagerstown, Md.
Milliken, Walter S., Madison, Me.
Millikin, T. N., Waynesburg, Pa.
Mills, H. Booker, Philadelphia.
Milnamow, J. T., Chicago.
Minor, Chas. L., Asheville, N. C.
Mitchell, Alfred, Brunswick, Me.
Mitchell, Harry F., South Bend, Ind.
Mitchell, Weir, Philadelphia.
Mix, Charles Louis, Chicago.
Moline, Charles, Sunderland, Mass.
Monroe, Nathan A.,Syracuse,N.Y.
Montgomery, R. H., Youngstown, Ohio.
Monroe, Wm. H., Woonsocket,R.I.
Moore, Arthur R., Portsmouth,O.
Moore, Edwin P., South Bend, Ind.
Moore, T. B., Canon City, Colo.
Moore, J. C., Omaha, Neb.
Moore, James S., East Providence, R. I.
Moore, T. M., Willoughby, O.
Moran, John B., Boston.
Moran, Thomas, Biddeford, Me.
Morgan, J. Howard, Westerly, R. I.
Morgan, Wm. Gerry, Washington, D. C.
Morrill, Chas. P., North Andover, Mass.
Morrill, L. B., Center Harbor, N. H.
Morris, John G., Boston.
Morris, J. Stewart, Revere, Mass.
Morrison, J. Rowan, Louisville, Ky.
Morrison, Sidney K., Reno, Nev.
Morrissey, John J., New York.
Morrow, E. O., Canton, O.
Morse, Edw. G., Roxbury, Mass.
Morse, F. D., Lawrence, Kas.
Morse, F. H., Boston.
Morse, Frank L., Somerville, Mass.
Morse, Frank W., Canton, Me.
Morton, David C., Louisville, Ky.
Morton, J. B., Ridgefarm, Ill.
Mouser, A. H., Latty, O.
Moyer, Frank E., Pennville, Ind.
Mudgett, John H., Philadelphia.
Munson, S. E., Springfield, Ill.
Murdock, Frank H., Pittsburg.
Murphy, Edward V., Newport, R. I.
Murphy, Franklin E., Kansas City, Mo.
Murphy, O. C., Scottsburg, Ind.
Murray, J. T. Manchester, N.H.
Musgrave, Percy, Boston.
Musser, J. H., Philadelphia.
Myers, S. W., Boston.
Nay, W. Scott, Underhill, Vt.
Nead, Daniel W., Philadelphia.
Neal, John H., Rochester, N.H.
Neary, P. N., Cortland, N. Y.
Neblett, L. L., Stayton, Tenn.
Neel, James L., Drake, Ky.
Neely, John M., Elmwood, Neb.
Nees, H. C., Park Ridge, N. J.
Nessley, G. B., Grove City, O.
Nettleton, Francis I., Shelton, Conn.
Newell, E. Dunbar, St. Joseph, La.
Newell, Harry W., West Derry, N. H.
Newhall, Alden Russell, Hollister, Mass.
Newhall, Lawrence T., Brookfield, Mass.
Newmans, H. M., South Milford, Ind.
Newth, C. H., Philomath, Ore.
Newton, William C., Revere, Mass.
Nickerson, George W., Stoneham, Mass.
Nieder, Chas. F., Geneva, N. Y.
Nippert, Henry T., St. Paul.
Nippert, Louis A., Minneapolis.
Nootnagel, Charles F., Minneapolis.
Norman, W. G., Dow City, Ia.
Norris, Frank O., Eagle Lake, Texas.
Norris, George N., Philadelphia.
Norton, F. D., Columbus, Ind.
Norwood, E. W., Spencer, Mass.
Noyes, Nathaniel K., Duxbury, Mass.
Noyes, Robert F., Providence, R.I.
O'Brien, Charles T., Woburn, Mass.
O'Brien, James F., Bellows Falls, Vt.
O'Brien, Joseph J., Boston.
Oburn, A. S., Altoona, Pa.
O'Connell, Thomas S., East Hartford, Conn.
O'Day, George F., Worcester, Mass.
O'Hearn, Daniel A., Lowell, Mass.
O'Keefe, Michael W., East Boston, Mass.
O'Meara, John G.,Providence,R.I.
Ordway, Thomas, Boston.
Osgood, Frederick L., Saxton's River, Vt.
Osterhout, J. J., Marlow, N. H.
Oswald, B. Frank, Cleveland, O.
Otis, Samuel D., Meriden, Conn.
Overlock, S. B., Pomfret, Conn.
Oviatt, G. A., South Sudbury, Mass.
Packard, George Henry, Medford, Mass.
Page, Henry F., Philadelphia.
Paine, R. C., Thompson, Conn.
Palfrey, Francis W., Boston.
Palmiter, L. B., Mt. Upton, N. Y.
Parks, J. Wilson, East Boston, Mass.
Parsons, A. W., Sioux Falls, S.D.
Patch, William T., Boston.
Patton, J. Reynolds, Fairfield, Vt.
Paulson, David, Hinsdale, Ill.
Payne, G. W., Hardwell, Ky.
Payne, Luther C., Liberty, N. Y.
Pearce, Beatrice, Waukegan, Ill.
Pearson, G. Burton, Middleton, Del.
Pearson, M. W., Ware, Mass.
Peck, C. W., Brandon, Vt.
Peck, J. M., Arlington, Ky.
Peek, Leon A., Melbourne, Fla.
Peirce, George A., Tewksbury, Mass.
Penny, Herbert T., Cliftondale, Mass.
Pepper, William, Philadelphia.
Perkins, Jay, Providence, R. I.
Peterman, A. L., Parker, S. D.
Peterson, C. A. B., New Bedford, Mass.
Petry, William, Newark, N. J.
Pfaff, Otto, Oneida, N. Y.
Phelps, O. W., Warren, Mass.
Pickard, I. L., Concord Junction, Mass.
Pickett, F. B., Tyty, Ga.
Pickett, I. N., Odell, Neb.
Pierce, M. Vassar, Milton, Mass.
Pierson, Spencer, Ind.
Pigman, S. C., Concordia, Kas.
Pike, Forrest F., Melrose, Mass.
Pinard, P. R., Geddes, S. D.
Pitcher, H. F., Haverhill, Mass.
Pitner, T. J., Jacksonville, Ill.
Pitts, Rufus, Murfreesboro, Tenn.
Polak, John O., Brooklyn, N. Y.
Pollock, Robert, Cleveland, O.
Pomeroy, F. H., Monterey, Tenn.
Pomeroy, Hiram Sterling, Boston
Pond, B. W., Boston.
Pope, Frank F., Ashby, Mass.
Porter, David R., Kansas City, Mo.
Porter, Edwin A., Pittsfield, Me.
Porter, Robert B., North Easton, Mass.
Potter, L. A., Superior, Wis.
Potter, Nathl. Bowditch, New York.
Powell, Charles F., Dayton, O.
Powers, Hale, Brookline, Mass.
Powers, J. C., Hampton, Ia.
Pratt, John, Manchester, N. H.
Pratt, Joseph H., Boston.
Preble, Robert B., Chicago.
Presbery Silas Dean, Taunton, Mass.
Prescott, H. L., Kennebunk Port, Maine.
Prescott, W. H., Boston.
Priestley, James Taggart, Des Moines, Ia.
Provandie, Paul H., Melrose, Mass.
Pulb, F. A., Wilmington, O.
Putnam, James W., Lyons, N. Y.
Putney, James, Charleston, W.Va.
Putt, Maurice O., Oberlin, Pa.
Quick, Tunis C., Falls Church, Va.
Radcliff, Sue, Yonkers, N. Y.
Radebaugh, John M., Pasadena, Calif.
Randall, J. A., Old Orchard, Me.
Ransom, N. M., Somerville, Mass.
Rawlings, I. Donaldson, Chicago.
Rawlins, James S., Dancyville, Tenn.
Raymond, L. H., Somerville, Mass.
Rayner, H. W., What Cheer, Ia.
Read, J. W., Newark, N. J.
Reed, Boardman, Philadelphia.
Reeser, Howard S., Reading, Pa.
Redmond, James William, South Boston, Mass.
Reilley, D. G., Dayton, O.
Renn, T. H., Chicago.
Reoch, William S., Phenix, R. I.
Reynolds, J. C., Lake Geneva, Wis.
Reynolds, J. J., Defiance, O.
Rice, Frederick W., Boston.
Rice, Wm. E., Bath, Me.
Richards, Florence Harvey, Philadelphia.
Ridpath, R. F., Philadelphia.
Riegel, Henry H., Catasauqua, Pa.
Rigg, J. E., Wilkinsburg, Pa.
Riley, W. F., Baltimore, Md.
Ristine, W. H., Crawfordsville, Ind.
Robb, Robert, Hiteman, Ia.
Robb, Winifred A. Y., Hiteman, Ia.
Robb, Wm. M., Boston.
Robbins, G. E., Chillicothe, O.
Roberts, Derring J., Nashville, Tenn.
Roberts, Ellis G., Fair Haven, Vt.
Roberts, Frederick C., Easton,Pa.
Roberts, Thomas Elmer, Oak Park, Ill.
Robey, William H., Jr., Boston.
Robinson, Paul S., New Haven, Conn.
Robinson, Rienzi, Danielson, Conn.
Robinson, Wm. H., Boston.
Rochester, De Lancey, Buffalo.
Rodham, Thos. B., Scranton, Pa.
Roe, J. I., Wilkesbarre, Pa.
Rogers, Frank A., Everett, Mass.
Rollins, Edwin T., Boston.
Rosenthal, M. J., Baltimore.
Roussel, Albert E., Philadelphia.
Rowe, Carleton Allen, Tewksbury, Mass.
Rowe, Jesse, Abingdon, Ill.
Ruff, William F., Philadelphia.
Rusk, John A., Gray Summit, Mo.
Russell, Charles B., Boston.
Rustor, Warren D., Somerville, Mass.
Rutherford, J. E., Straight, Pa.
Salter, John C., St. Louis.
Sanborn, J. T., Portland, Me.
Sanger, Guy E., Arlington, Mass.
Sargent, George B., Lawrence, Mass.
Sargent, George W., Seneca Castle, N. Y.
Sargent, Walter L., Quincy,Mass.
Saunders, Joseph, Brookline, Mass.
Savage, Chester Grant, Westerly, R. I.
Sawyer, Alton, Gardiner, Me.
Sawyer, Elihu Le Roy, Boston.
Sawyer, F. M., South Bend, Ind.
Sawyer, Frank W., Hot Springs, Ariz.
Sawyer, John P., Cleveland, O.
Sawyer, W. G., Madison, Wis.
Scales, Jefferson, Tompkinsville, N. Y.
Schuman, O. V., Columbia City, Ind.
Schweer, T. J., Beardstown, Ill.
Scofield, Walter K., Stamford, Conn.
Scofield, Walter W., Dalton,Mass.
Scott, A. C., Cleveland, Ohio.
Scott, Joseph Allson, Philadelphia.
Scribner, Charles H., Paterson,
Searle, Frank W., Portland, Me.
Sears, Geo. G., Boston.

Sedlacek, Frederick A., Tyndall, S. D.
Selberling, Fred C., Allentown, Pa.
Seibert, W. H., Steelton, Pa.
Seiple, Samuel C., Centre Square, Pa.
Sellmaling, H. Nichols, Fulton, Ill.
Sewall, Henry, Denver, Col.
Seymore, Malcolm, Boston.
Shannon, N. V., Cambridge, Mass.
Sharpe, Frank M., Brooklyn.
Sharpless, W. T., Westchester, Pa.
Shattuck, Albert M., Worcester, Mass.
Shattuck, F. C., Boston.
Sheafe, E. A., Ottumwa, Ia.
Shearer, James Y., Reading, Pa.
Shedd, Geo. H., North Conway, N. H.
Sheldon, H. W., Negaunee, Mich.
Shelly, D. W., Ambler, Pa.
Shelley, H. J., Middletown, N. Y.
Shelton, E. H., Blandville, Ky.
Shelton, Gould, A., Shelton, Conn.
Shepherd, George Rubens, Hartford, Conn.
Sherburne, Andrew E., Dorchester, Mass.
Sherman, William A., Newport, R. I.
Shields, S. S., Carbondale, Pa.
Shipps, William H., Bordentown, N. J.
Shoemaker, F., Carlisle, Pa.
Shultz, P. David, New York.
Shurtleff, Henry C., Philadelphia.
Silva, F. P., Boston.
Simmons, M. H., Orange, N. J.
Simmons, Walter C., Smith's Grove, Ky.
Simpson, E. E., Chicago.
Sippy, Bertram W., Chicago.
Sise, Lincoln F., Medford, Mass.
Sitler, W. Radcliffe, Suffern, N.Y.
Skinner, Clarence E., New Haven, Conn.
Slayton, Wm. T., Morrisville, Vt.
Sleeper, W. J., Westford, Mass.
Slingerland, I. M., Fayetteville, N. Y.
Small, E. W., Tarrytown, N. Y.
Smedley, R. C., Bingham Canyon, Utah.
Smethers, Wm. H., Moline, Kas.
Smith, C. U., Baltimore.
Smith, D. G., Elizabeth, Ill.
Smith, E. Franklin, New York.
Smith, Frank A., Lebanon, N. H.
Smith, F. Conger, New York.
Smith, Frank H., Hadley, Mass.
Smith, Geo. C., Boston.
Smith, Henry O., Hudson, N. H.
Smith, Howard H., Boston.
Smith, J. E., Altoona, Pa.
Smith, Maurice, Massillon, O.
Smith, R. Morton, Riverpoint, R.I.
Smyser, Charles James, Harwich, Mass.
Snipe, Langdon T., Bath, Me.
Snow, Frank W., Newburyport, Mass.
Snow, S. A., North Branch, Mich.
Solis-Cohen, Myer, Philadelphia.
Sommerfield, J. E., Atlanta, Ga.
Sowder, Chas. R., Indianapolis, Ind.
Spaulding, F. W., Clifton Springs, N. Y.
Spivak, C. D., Denver, Colo.
Spooner, John Winthrop, Hingham, Mass.
Sprague, Oliver A., Turner, Me.
Sproull, John, Haverhill, Mass.
Stabler, Lorenzo V., Thorsby, Ala.
Standly, E. D., Linneus, Mo.
Standly, Kathryn V., Brookfield, Mo.
Standly, Z. T., Laclede, Mo.
Stanoff, Dembrius, Chicago.
Stanhope, A. H., Dover, Me.
Stanley, J. M., Northboro, Mass.
Stanwood, A. L., Rumford Falls, Me.
Starbuck, J., Clinton, North Easton, Mass.
Starr, Robert S., Hartford, Conn.
Start, S. G., Cambridge, Vt.
Stealy, A. R., Charlotte, Mich.
Steele, J. Dutton, Philadelphia.
Steele, R. G., Melvin, O.
Stephen, Chas. A., Helena, O.
Stetson, E. F., Damarescotta, Me.
Stetson, Frank E., New Bedford, Mass.
Stevens, Andrew J., Malden, Mass.
Stevens, Sara E., West Roxbury, Mass.
Stewart, Edith W., Hume, N. Y.
Stewart, James, Holstein, Mo.
Stickney, Whitman G., Beverly, Mass.
Stiles, Fred Merritt, Waltham, Mass.
Stimson, Charles A., Eaton Rapids, Mich.
Stimson, Edward P., Tiverton, R. I.
Stockdale, T. F., Rural Valley, Pa.
Stockton, Chas. G., Buffalo, N.Y.
Stockwell, Benj. E., St. Louis.
Stone, A. K., Boston.
Stone, Charles S., Boston.
Stone, Frank E., Lynn, Mass.
Stowe, Irving E., Medford, Mass.
Stone, Lincoln R., Newton, Mass.
Stone, Melvin T., Troy, N. H.
Stout, Harry A., Wenonah, N. J.
Stover, Chas. Amsterdam, N. Y.
Stowell, James H., Chicago.
Stratton, Ralph R., Melrose, Mass.
Straw, N. W. R., Portland, Me.
Streeter, John F., Springfield, Mass.
Stretch, James, Stafford Springs, Conn.
Strong, Lawrence W., Boston.
Strouss, U. S., Beaver, Pa.
Stuart, Frederick W., Boston.
Stuart, J. H., Minneapolis.
Stubbs, Frank Raymond, Newton, Mass.
Stubbs, Richard H., Augusta, Me.
Strickler, S. L., Bogstown, Ind.
Sturtevant, J. S., Dixfield, Mass.
Sughrue, Dennis F., Boston.
Sullivan, Claude C., Waverly, Tenn.
Sullivan, D. E., Concord, N. H.
Sullivan, J. H., Charlotte, N. Y.
Sullivan, Joseph L., Boston.
Sullivan, M. H., Newport, R. I.
Sumner, H. H., Lowell, Mass.
Suylandt, C. G., Gladwin City, Mich.
Sylvea, Chas. A., Providence, R. I.
Swan, Roscoe Wesley, Worcester, Mass.
Swan, W. H., Colorado Springs, Colo.
Sweeny, H. L., Kingston, N. H.
Sweet, Albert H., Huntley, Ill.
Sweet, Chas. F., Pawtucket, R.I.
Sylvester, W. H., Natick, Mass.
Taft, Albert A., Boston.
Talley, James E., Philadelphia.
Talbot, Fritz B., Brookline, Mass.
Tallaferro, B. Lawrence, Richmond, Va.
Taussig, Arnold S., Denver, Colo.
Taylor, Frederic W., Cambridge, Mass.
Taylor, John D., Minot, N. D.
Taylor, John H., Holley, N. Y.
Taylor, Joseph, Manchester, N.H.
Taylor, Lewis C., Springfield, Ill.
Teachout, S. R., Huntingdon, Tenn.
Teller, Howard Jay, Rome, N. Y.
Temple, W. F., Boston.
Templeton, P. C. Waller, Irasburg, Vt.
Thayer, Addison Sanford, Portland, Me.
Thayer, W. S., Baltimore.
Thesing, J. H., Cincinnati.
Thomas, John D., Washington, D. C.
Thomas, Chas. E., Leesburg, Ind.
Thomason, W. P. O., Easton, Pa.
Thompson, George E., Boston.
Thornton, Wm. H., Buffalo, N.Y.
Tibbitts, N. J., Waukesha, Wis.
Tibbetts, James T., Boston.
Tilden, Irving N., Mattapoisett, Mass.
Tileston, Wilder, Boston.
Tilton, Josiah Odin, Lexington, Mass.
Timmerman, C. F., Amsterdam, N. Y.
Todd, Francis H., Paterson, N.J.
Towle, Henry C., Boston.
Tower, B. M., Conneaut, O.
Townsend, T. S., Detroit, Mich.
Toye, J. E., Charlestown, N. H.
Traver, S. N., Steelton, Pa.
Treanor, John P., Boston.
Tucker, S. Chase, Peabody, Mass.
Tucker, W. L., Hinsdale, Mass.
Tufty, Jonas M. O., Duluth, Minn.
Tupper, Augustus M., Rockport, Mass.
Tustin, Ruth, Eastport, Me.
Tuttle, Vine H., Orwell, O.
Tuttle, Charles A., New Haven, Conn.
Tyson, James, Philadelphia.
Ulyer, Jesse S., St. Louis.
Umberhine, Charles D., Lebanon, Ind.
Varney, J. R., Oldtown, Me.
Van Allen, H. W., Springfield, Mass.
Van Dyke, Arthur D., Marysville, Pa.
Van Sickle, F. L., Olyphant, Pa.
Vaughan, Jonas H., Everett, Mass.
Vaughan, I. J., Topeka, Ind.
Vickery, Herman F., Boston.
von Groll, Max C., Boston.
Voorus, C. W., Beaver Dam, Wis.
Wadsworth, John E., Skowhegan, Me.
Waite, Henry E., New York.
Wakefield, Homer, New York.
Wakelee, E. H., Big Flats, N. Y.
Walbright, G. W., Round Knob, Ill.
Waldrop, R. W., Bessemer, Ala.
Wald, Rudolf H., Boston, Mass.
Walker, Charles S., Keene, N.H.
Wallace, Arthur L., Nashua, N.H.
Wallace, Ellen A., Manchester, N. H.
Wallis, Samuel R., Miller, S. D.
Walsh, Charles J., Cambridge, Mass.
Walsh, Jas. J., New York.
Walsh, John E., Revere, Mass.
Ward, Freeman F., New York.
Ward, John P., Vevay, Ind.
Ward, R. J., Worcester, Mass.
Ward, E. L., Osceola, Pa.
Wardwell, M. A., Penobscot, Mass.
Warren, Franklin L., Bridgewater, Mass.
Warner, Robt. A., Baltimore, Md.
Waggatt, Cecil E., Deer Isle, Me.
Watt, James L., Hackensack, N. J.
Watson, W. E., Pontiac, Mich.
Webb, Joel A., Providence, R. I.
Webber, Frederick W., Newton, Mass.
Webber, H. G., Wilbraham, Mass.
Webber, Stephen E., Calais, Me.
Webster, George W., Chicago.
Webster, I. D., Mankato, Minn.
Weid, G. Gilmore, Oldtown, Me.
Weeks, Ambrose H., Portland, Me.
Weeks, R. W., Manchester, N. H.
Weibel, E. G., Erie, Pa.
Weidman, John A., Dunkirk, N.Y.
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Daly, Victor M., Pontiac, Ill.
Darrow, Daniel C., Moorhead, Minn.
Darrow, Edward M., Fargo, N. D.
Darrington, John, Yazoo City, Miss.
Day, F. M., Eugene, Ore.
Day, Hilbert Francis, Boston.
Daugherty, Charles A., South Bend, Ind.
Davis, Byron B., Omaha, Neb.
Davis, O. C. S., Augusta, Maine.
Davis, Lincoln, Boston.
Dawbarn, Robert H. M., New York.
Dean, Willis W., Sioux City, Ia.
Dearing, Henry L., Braintree, Mass.
Deaver, John B., Philadelphia.
De Garmo, W. B., New York.
De Normandie, R. L., Boston.
Delaney, William E., Slate Run, Pa.
Dennis, Bernard F., Niagara Falls, N. Y.
Dennis, Frederic S., New York.
Dennett, Daniel C., Winchester, Mass.
Dentsch, Wm. S., St. Louis.
Dillard, John W., Lynchburg, Va.
Disque, T. L., Pittsburg, Pa.
Dixon, Charles H., St. Louis.
Dixon, Archibald, Henderson, Ky.
Doane, Philip S., Chicago.
Dodd, J. I. F., Pittsfield, Mass.
Doege, Karl, Marshfield, Wis.
Doern, W. G., Milwaukee, Wis.
Dulloff, Albert S., New Hampton, N. H.
Donnelly, James, Toledo, Ohio.
Dorr, E. E., Des Moines, Iowa.
Downey, J. H., Gainesville, Ga.
Drake, George S., St. Louis.
Driesbach, F. R., Dansville, N. Y.
Dudley, Augustus W., Cambridge, Mass.
Duncan, M. J., Dallas, Tex.
Dunlap, W. O., Sedalia, Mo.
Dunlap, Elbert, Dallas, Tex.
Dunn, J. B., St. Cloud, Minn.
Dunsmoor, F. A., Minneapolis, Minn.
Durant, Charles Edwin, Haverhill, Mass.
Dwight, Thomas, Nahant, Mass.
Dye, Frank Hazzard, Philadelphia.
Earl, Robert O., St. Paul, Minn.
Eastman, E. B., Portsmouth, N. H.
Eastman, Joseph Rhees, Indianapolis, Ind.
Edwards, Frank H., Evanston.
Ehrmann, Fred J. E., Chicago.
Eisendrath, Daniel N., Chicago.
Eisenberg, Philip Y., Norristown, Pa.
Eitel, George G., Minneapolis, Minn.
Eklund, J. J., Duluth, Minn.
Elam, W. T., St. Joseph, Mo.
Elmer, M. K., Bridgeton, N. J.
Elsberg, Charles A., New York.
Elsner, Simon L., Rochester, N. Y.
Emerson, George Edward, Boston.
Emerson, Kendall, Worcester, Mass.
Ensworth, Wm. H., East Boston.
Eschbach, H. C., Albia, Iowa.
Estes, W. L., South Bethlehem, Pa.
Eve, Duncan, Nashville, Tenn.
Everett, A. G., Friar's Point, Miss.
Fairchild, D. S., Clinton, Iowa.
Fairfield, W. J., Anderson, Ind.
Fall, C. P., Beatrice, Neb.
Faulkner, W. E., Boston.
Fell, Alexander G., Wilkesbarre, Pa.
Ferguson, Alexander Hugh, Chicago.
Ferguson, E. D., Troy, N. Y.
Ferguson, Robert Henry, Boston.
Fetherolf, F. A., Allentown, Pa.
Field, James B., Lowell, Mass.
Fields, D. B., Weaverville, Cal.
Fields, E. T., Ensley, Ala.
Filkins, Silas L., Albany, N. Y.
Finney, John M. T., Baltimore.
Fitz, G. W., Boston.
Fitzgibbon, T., Milwaukee, Wis.
Finn, Frederic A., Jersey City, N. J.
Flagg, Elisha, Boston.
Flanagan, Wm. F., Providence, R. I.
Fleming, J. C., Elkhart, Ind.
Fletcher, Will C., Asheville, N. C.
Flynn, Edward H., Marquette, Mich.
Forman, A. C., Bayonne, N. J.
Fox, F. E., Fulton, N. Y.
Franklin, Melvin M., Philadelphia.
Frauenthal, Henry W., New York.
Freeman, Leonard, Denver, Colo.
Freiberg, Albert H., Cincinnati, Ohio.
Frey, R. W., Trenton, Ky.
Frick, W. J., Kansas City, Mo.
Fuller, D. E., Hastings, Mich.
Fuller, Edwin M., Bath, Maine.
Fuller, Eugene, New York.
Fulton, Z. M. K., Philadelphia.
Funk, C. C., Smith Center, Kan.
Gabler, G. L., Holyoke, Mass.
Gafford, C. C., Wymore, Neb.
Gage, Homer, Worcester, Mass.
Gage, J. Arthur, Lowell, Mass.
Gale, J. A., Roanoke, Va.
Gant, Samuel G., New York.
Gardner, Fletcher, Bloomington, Ind.
Gardner, H. D., Scranton, Pa.
Garcelon, R., Lewiston, Maine.
Gaub, O. C., Pittsburg, Pa.
Gay, C. Bertram, Fitchburg, Mass.
Gay, George W., Boston, Mass.
Gay, Warren T., Boston, Mass.
George, Arthur P., Haverhill, Mass.
Germain, Harry H., Boston.
Gerrish, Frederic Henry, Portland, Maine.
Gibney, V. P., New York.
Gibby, Herbert B., Pittston, Pa.
Giddings, W. J., Gardiner, Me.
Gile, John M., Hanover, N. H.
Gillette, L. M., Battle Creek.
Gilman, Charles S., Boston.
Gilpatrick, R. H., Boston.
Gleason, J. H., Manchester, N. H.
Glover, John J., Stuyvesant Falls, N. Y.
Goddard, Samuel Warren, Brockton, Mass.
Goodridge, Frederick J., Cambridge, Mass.
Godfrey, Joseph, Lancaster, Wis.
Goldstein, David D., New York.
Goldthwait, Joel E., Boston.
Goodhue, J. D., Dayton, Ohio.
Goodwin, James J., Clinton, Mass.
Goodhue, George, Dayton, Ohio.
Godfrey, Andrew, Ambler, Pa.
Gordon, W. Frank, Danbury, Conn.
Gordon, S. M., Fall River, Mass.
Graefe, Charles, Sandusky, O.
Graham, Alois B., Indianapolis, Ind.
Graham, David W., Chicago.
Grant, J. C., Lina, Wis.
Grant, W. W., Denver, Colo.
Graves, Robert J., Concord, N. H.
Gray, G. H., Lynn, Mass.
Gray, Frank D., Jersey City, N. J.
Greenough, Robert B., Boston.
Gregg, W. T. S., Calumet, Mich.
Green, Frederick R., Chicago.
Green, George Willard, Chicago.
Green, James S., Elizabeth, N. J.
Grier, Edgar B., Elizabeth, N. J.
Gudden, B. C., Oshkosh, Wis.
Guillet, Noel E., Manchester, N. H.
Guiteras, Ramon, New York.
Guthrie, Geo. W., Wilkesbarre, Pa.
Gumaer, A. G., Buffalo, N. Y.
Gwyer, Frederick, New York.
Haecker, L. E., Hampton, Iowa.
Haggard, W. D., Nashville, Tenn.
Hagner, Francis R., Washington, D. C.
Haines, W. D., Cincinnati, Ohio.
Halderman, Stephen, Portsmouth, Ohio.
Hall, J. B., Jr., Boston.
Hall, J. C., Anguilla, Miss.
Hall, Nelson Read, Warren, R. I.
Hallett, Edward B., Gloucester, Mass.
Halsted, William S., Baltimore, Md.
Hamilton, J. W., Mt. Vernon, Ill.
Hancock, John C., Dubuque, Ia.
Hardon, Robert Wallace, Chicago.
Harrington, T. F., Milwaukee.
Harriman, A. H., Laconia, N. H.
Harriman, C. H., Whitinsville, Mass.
Harrington, Frances M., Providence, R. I.
Harris, Chas. H., Ft. Worth, Tex.
Harris, M. L., Chicago.
Hartshorn, Willis E., New Haven, Conn.
Hartwell, John B., Boston, Mass.
Haskell, Alfred William, Portland, Maine.
Hatch, Edward S., New Orleans, La.
Hatch, Leonard F., Lynn, Mass.
Hawkes, Charles E., Providence, R. I.
Hawley, D. C., Burlington, Vt.
Hayden, A. M., Evansville, Ind.
Hayes, D. J., Milwaukee, Wis.
Hayman, Abe, Brooklyn, N. Y.
Haywood, J. Robert, Piqua, O.
Hazard, George L., Hollis, N. H.
Hazelton, George W., Haverhill, N. H.
Hazelton, William F., Billow Falls, Vt.

Hazzard, Thomas L., Allegheny, Pa.
Hearst, W. L., Cedar Falls, Ia.
Heffenger, Arthur C., Portsmouth, N. H.
Heffner, O. C., Pottstown, Pa.
Heidner, G. A., West Bend, Wis.
Heim, A. C., Beloit, Wis.
Helm, Walter B., Rockford, Ill.
Hendershot, Byron C., New Philadelphia, Ohio.
Hendricks, W. H., Tifton, Ga.
Hendon, George A., Louisville, Ky.
Henry, James E. L., Providence, R. I.
Hertzberg, G. R. R., Stamford, Conn.
Hetherington, William, Jersey City, N. J.
Hickey, James E., Springfield, Mass.
Hiett, G. W., Pittsburg, Pa.
Higgens, Frank A., Boston.
Hill, C. D., Jersey City, N. J.
Hill, J. W., South Bend, Ind.
Hill, F. C., Boston.
Hills, Louis L., Westbrook, Me.
Hills, T. Morton, Willimantic, Conn.
Hinchliffe, Frederick, Lowell, Mass.
Hirschman, Louis J., Detroit, Mich.
Holland, R. A., Calais, Maine.
Hollingsworth, Arthur, Providence, R. I.
Hollowbush, J. R., Rock Island, Ill.
Holman, Carl J., Mankato, Minn.
Holmes, Bayard, Chicago.
Holtsclaw, C., Chattanooga, Tenn.
Holyoke, Frank, Holyoke, Mass.
Homans, John, Boston.
Horner, M. W., Mt. Pleasant, Pa.
Hoover, N., Boonville, Ind.
Hopkins, Thos. H., Louis.
Horsley, J. Shelton, Richmond, Va.
Hough, Garry de N., New Bedford, Mass.
Houghton, E. F., Tilton, N. H.
Houghton, Montafix W., Providence, R. I.
House, A. F., Cleveland, Ohio.
Howard, Jos. F., Lawrence, Mass.
Howe, H. G., Hartford, Conn.
Howe, Walter C., Boston.
Hoye, Henry J., Providence, R. I.
Hubbard, Frank A., Taunton, Mass.
Hubbard, J. C., Boston.
Hubert, R. I., St. Cloud, Minn.
Hughes, J. P., Walnut Ridge, Ark.
Hughes, W. E., Pocahontas, Ark.
Humleston, Chas. E., Chicago.
Hunt, G. P., Pittsfield, Mass.
Hunt, W. J., Glens Falls, N. Y.
Jack, Ernest S., Melrose, Mass.
Jackson, Albert P., Oakfield, N. Y.
Jackson, Frank H., Houlton, Me.
Jackson, Ralph W., Fall River, Mass.
Jackson, Jabez N., Kansas City, Mo.
Jackson, W. D., Lowell, Mass.
James, T. A., Ashley, Pa.
Jayne, Walter A., Denver, Colo.
Jepson, William, Sioux City, Ia.
Jerome, Joseph N., Evansville, Ind.
John, D. St., Hackensack, N. J.
John, J. S., Bloomsburg, Pa.
Jonas, A. F., Omaha, Neb.
Jones, Daniel Fiske, Boston.
Jones, David N., Gaylord, Minn.
Johnston, George Ben, Richmond, Va.
Johnson, M. M., Hartford, Conn.
Johnson, W. D., Batavia, N. Y.
Jopson, John H., Philadelphia.
Keefe, John W., Providence, R. I.
Keller, Lester, Ironton, Ohio.
Kelly, W. D., St. Paul, Minn.
Kelly, James A., Philadelphia.
Kelly, J. G., Hornellsville, N. Y.
Kennedy, T. C., Shelbyville, Ind.
Keene, Chas. H., Boston, Mass.
Keen, W. W., Philadelphia, Pa.
Kerr, J. P., Pittsburg, Pa.
Kerr, Norman, Chicago.
Kessel, George, Cresco, Iowa.
Kidner, F. C., Boston.
Kimball, Rush W., Norwich, Conn.
King, Alfred, Portland, Maine.
King, J. A., Millville, Mass.
Kimpton, Arthur R., Somerville, Mass.
Kirby, Holder, New Bedford, Mass.
Kittrell, T. F., Texarkana, Ark.
Kline, Chas. D., Nyack, N. Y.
Klump, John A., Williamsport, Pa.
Knight, Chas. L., Boston.
Knight, J. C., Plant City, Fla.
Knott, Van Buren, Sioux City, Iowa.
Krouse, Louis J., Cincinnati, O.
Kurth, G. E., Lawrence, Mass.
Lack, Charles Eugene, Brooklyn, N. Y.
Lambert, John H., Lowell, Mass.
Lane, John William, Boston.
Laplace, Ernest, Philadelphia.
Larimore, Frank C., Mt. Vernon, Ohio.
Larsen, C. L., Buffalo, Minn.
Latta, Samuel W., Philadelphia.
Lawrence, Florus F., Columbus, Ohio.
Lawrence, J. Wilmot, Malden, Mass.
Laws, William V., Hot Springs, Ark.
Lee, Stephen G., East Orange, N. J.
Letcher, James Hughes, Henderson, Ky.
Leith, W. H., Lancaster, N. H.
Letcher, Joseph B., Shorter, Ala.
Lewis, A. C., Fall River, Mass.
Lenz, George, Gloversville, N. Y.
Lespinasse, Victor D., Chicago.
Link, J. A., Springfield, Ohio.
Little, L. W., Iowa City, Iowa.
Little, J. W., Minneapolis, Minn.
Lloyd, Samuel, New York.
Loder, Percival E., Philadelphia.
Logan, Frank P. T., Gloucester, Mass.
Lamade, Albert C., Williamsport, Pa.
Long, Charles, Wilkesbarre, Pa.
Longe, B. D., Newport, Vt.
Longie, F. E., Marcus, Iowa.
Lord, John P., Omaha, Neb.
Loughlen, Thomas B., Olean, N. Y.
Love, W. S., Winchester, Va.
Lovell, C. E., Whitman, Mass.
Lovett, Robert W., Boston.
Lowry, G. W., Hastings, Mich.
Lund, F. B., Boston.
Lyle, Henry Hamilton Moore, New York.
Lyman, C. B., Denver, Colo.
Lyman, J. V. R., Eau Claire, Wis.
Lumbard, Joseph Edward, New York.
Lynch, Chas. F., Springfield, Mass.
Lynch, J. M., New York.
Lyon, Donald B., Pawtucket, R. I.
Mackechnie, Horace P., Somerville, Mass.
Mackechnie, Arthur N., Cambridge, Mass.
MacKenzie, Kenneth A. J., Portland, Ore.
Maclay, A. I., Delavan, Ill.
MacLaren, Archibald, St. Paul, Minn.
MacMillan, A. L., Hanover, Mass.
MacMillan, J. A., Detroit, Mich.
Macrae, Donald, Jr., Council Bluffs, Iowa.
MacRae, John, Calumet, Mich.
Madill, G. C., Ogdensburg, N. Y.
Maes, Urban, New Orleans, La.
Magie, W. H., Duluth, Minn.
Mahon, John B., Pittston, Pa.
Mahony, Francis R., Lowell, Mass.
Mahoney, Stephen A., Holyoke, Mass.
Maloney, John R., Key West, Fla.
Mann, J. P., Philadelphia.
Marcy, Henry O., Jr., Boston.
Markley, P. L., Rockford, Ill.
Marsh, F. L., Mt. Pleasant, Pa.
Marsh, J. H., Fayetteville, N. C.
Martin, Collier F., Philadelphia.
Martin, E. Denegre, New Orleans, La.
Martin, Frank Baltimore.
Marvel, Emery, Atlantic City, N. J.
Mason, James S., Urbana, Ill.
Matas, Rudolph, New Orleans, La.
Matchette, W. H., Hancock, Mich.
Mathews, Joseph M., Louisville, Ky.
Matteson, Geo. A., Providence, R. I.
Mattison, Fitch C. E., Pasadena, Cal.
Maury, J. W. Draper, New York.
Maynard, S. E., Burlington, Vt.
Mayo, Wm. J., Rochester, Minn.
McAllister, Frederick D., Lawrence, Mass.
McArthur, Lewis L., Chicago.
McChord, Robert C., Lebanon, Ky.
McCormack, Arthur T., Bowling Green, Ky.
McClellan, Ben R., Xenia, Ohio.
McCoy, Ambrose, Jackson, Tenn.
McCoy, P. Y., Evansville, Ind.
McCracken, R. W., Union Grove, Wis.
McCready, S. R., Leetonia, Ohio.
McDonell, W. Neil, U. S. Navy.
McGrath, W. C., Eagle Grove, Ia.
McGrath, W. J., Elkader, Iowa.
McGlannan, Alexius, Baltimore.
McGillicuddy, Richard A., Turners Falls, Mass.
McGrew, F. A., La Porte, Ind.
McGuire, Stuart, Richmond, Va.
McKay, W. T., Arkansas City, Kan.
McKenzie, R., Philadelphia.
McKenna, John A., Lansdowne, Pa.
McKenna, John B., East Providence, R. I.
McKnight, E. J., Hartford, Conn.
McLeay, John D., Indianapolis, Ind.
McLean, Charles H., Denver, Colo.
McLennan, Roderick L., Syracuse, N. Y.
McManus, T. U., Waterloo, Iowa.
McMeekin, James W., Saginaw, Mich.
McMullen, Charles G., Schenectady, N. Y.
McOscar, Edward J., Ft. Wayne, Ind.
McRae, Floyd W., Atlanta, Ga.
McVeigh, J. A., Detroit, Mich.
Mead, G. N. P., Winchester, Mass.
Meade, R. H., Great Bend, Kan.
Meader, Chas. E., Lynn, Mass.
Meeray, Paul M., Camden, N. J.
Melgs, Joe V., Lowell, Mass.
Mengel, S. P., Parsons, Pa.
Metcalf, Wm. F., Detroit, Mich.
Meyer, Willy, New York.
Michler, Henry D., Easton, Pa.
Miles, Geo. A., Somerville, Mass.
Miles, R. G., Newcastle, Pa.
Mills, W. P., Missoula, Manitoba.
Miller, A. Merrill, Danville, Ill.
Miller, Elmer M., Woodsville, N. H.
Miller, E. P., Fitchburg, Mass.
Miller, M. L., Susquehanna, Pa.
Miller, S. R., Knoxville, Tenn.
Miller, Wm. O., Norristown, Pa.
Milliken, Samuel E., Dallas, Tex.
Miner, A. L., Bellows Falls, Vt.
Miner, Worthington W., Ware, Mass.
Mitchell, Alfred, Jr., Portland, Maine.
Mitchell, J. W., Providence, R. I.
Mixter, Samuel J., Boston.
Molitor, Nicholas, La Grande, Ore.
Monks, George H., Boston.
Moore, James E., Minneapolis, Minn.
Moore, John T., Galveston, Tex.
Mooring, S. W., Gloucester, Mass.
More, C. W., Eveleth, Minn.
Morgan, F. C., Belleville, Vt.
Morgan, Geo. P., Dover, N. H.
Morgan, Harold J., Ogdensburg, N. Y.
Morris, J. E. K., Olean, N. Y.
Morris, Robert T. New York.
Morton, A. W., San Francisco.
Mosby, Wm. Lindsay, Bardwell, Ky.
Moss, W. F., Maineville, Ohio.
Mudd, H. G., St. Louis.
Mueller, Frederick, Chicago.
Mulligan, Edward W., Rochester, N. Y.
Mullins, Eugene N., Baldwinville, Mass.
Mumford, James G., Boston.
Muncy, Dwight H., Syracuse, N. Y.
Munger, E. E., Spencer, Iowa.
Munro, John C., Boston.
Murphy, E. S., Dixon, Ill.
Murphy, John B., Chicago.
Murphy, Joseph C., Taunton, Mass.
Murphy, W. S., Waukesha, Wis.
Murray, Thomas J., Butte, Mont.
Myers, Edward E., Boston.
Myers, John Franklin, Sodus, N. Y.
Myles, Leo T., Cambridge, Mass.
Nealey, E. T., Bangor, Maine.
Neff, Frank O., Kansas City, Mo.
Newcomb, Arthur T., Pasadena, Cal.
Nichols, Edward Hale, Boston.
Nickolson, Joseph L., Camden, N. J.
Nicola, C. C., Melrose, Mass.
Niles, H. D., Salt Lake, Utah.
Nolen, Walter F., Boston.
Norris, O. L., Dreshler, Ohio.
Norwood, E. E., Kingston, N. Y.
Oak, Chas. A., Revere, Mass.
Oakes, Wallace Kilbourne, Auburn, Maine.
Oakman, Carl S., Detroit, Mich.
O'Brien, C. C., Groveton, N. H.
Ochsner, A. J., Chicago.
O'Connor, John E., Fall River, Mass.
O'Dea, Charles A., Erie, Pa.
O'Day, J. C., Oil City, Pa.
Odlorne, Walter B., Boston.
O'Hara, W. J. A., Bridgeport, Conn.
Olney, Thos. A., South Bend, Ind.
O'Neil, Richard F., Boston.
Osborn, George W., Bridgeport, Conn.
Osgood, George, Boston.
Ottis, D. M., Springfield, Ill.
Palmer, Ezra, Boston.
Palmer, Frank A., Mechanicsville, N. Y.
Palmer, W. R., Johnsonburg, Pa.
Palmer, W. T., Glenville, Minn.
Paschal, Frank, San Antonio, Tex.
Parker, Geo. C., Saugus, Mass.
Parkham, Joseph G., Lynn, Mass.
Park, Roswell, Buffalo, N. Y.
Parker, David W., Manchester, N. H.
Parker, P. J., San Diego, Cal.
Painter, Charles F., Boston.
Parsons, John W., Portsmouth, N. H.
Parkhill, C. S., Hornellsville, N. Y.
Patterson, Wm. F., Boston.
Paul, Luther G., Boston.
Payne, Marshall J., Staunton, Va.
Peabody, Percy D., Webster, S. D.
Pearse, Herman E., Kansas City, Mo.
Peck, G. S., Youngstown, Ohio.
Pedigo, S. E., Marshfield, Ohio.
Pelton, O. L., Elgin, Ill.
Penning, Oliver P., Baltimore.
Pennington, J. R., Chicago.
Percy, J. F., Galesburg, Ill.
Perry, Herbert B., Northampton, Mass.
Peters, W. T., Burt, Iowa.
Phelps, John S., Boston.
Phippen, Hardy, Salem, Mass.
Pierce, Appleton H., Leominster, Mass.
Pillow, R. H., Butler, Pa.
Pinneo, Frank W., Newark, N. J.
Pitta Joan C. da S., New Bedford, Mass.
Plimpton, Warren O., New York.
Potter, A. Carleton, Boston.
Potter, T. E., St. Joseph, Mo.
Porter, W. A., Boston.
Porter, John L., Chicago.
Porter, Miles F., Ft. Wayne, Ind.
Powell, C. B., Albia, Iowa.
Powers, Charles A., Denver, Colo.
Prouty, Ira Joslin, Keene, N. H.
Preston, James L., Kingston, N. Y.
Pumphrey, R. J., Massillon, O.
Purdy, J. Spencer, Auburn, N. Y.
Purdue, G. C., Wichita, Kan.
Pyle, Immanuel, Jersey City, N. J.
Quimby, Wm. Carter, Boston.
Quinn, Stephen T., Elizabeth, N. J.
Ragan, O. H. Williams, Hagerstown, Md.
Ralls, Arthur W., Gadsden, Ala.
Ramsay, George D., Newport, R. I.
Ranchous, Walter E. M., Columbus, Ohio.
Rand, David H., Portland, Ore.
Randall, Floyd H., Bay City, Mich.
Randall, H. E., Lapeer, Mich.
Ransohoff, Joseph, Cincinnati, O.
Rosenthal, M., Cape Girardeau, Mo.
Read, Frederick B., Osceola Mills, Pa.
Reardon, Daniel R., Quincy, Mass.
Reeder, J. D., Baltimore.
Rees, Geo. M., Calumet, Mich.
Reed, Robert J., Wheeling, W. Va.
Reid, W. B., Rome, N. Y.
Reilly, James A., Boston.

Reilly, J. P., Elizabeth, N. J.
Rendleman, James W., East St. Louis, Ill.
Resseguie, Fred J., Saratoga Springs, N. Y.
Reynolds, O. H., Frankfort, Ky.
Richards, Clarence A., Rhinelander, Wis.
Richardson, F. T., Concord, Mass.
Richardson, Maurice H., Boston.
Richmond, E. D., Reading, Mass.
Roach, Alfred J., Lowell, Mass.
Roan, C. F., Chicago.
Robbins, Frederick W., Detroit, Mich.
Roberts, John B., Philadelphia.
Roberts, R. A., Kansas City, Kan.
Roberts, Wm. Owen, Louisville, Ky.
Robertson, Jason N., Wolcott, N. Y.
Robinson, F. J., Fairfield, Me.
Robinson, Samuel, Boston.
Robinson, Thomas J., Taunton, Mass.
Robrecht, John J., Philadelphia.
Rockwell, H. G., Amherst, Mass.
Rodman, Wm., Philadelphia.
Rogers, F. E., Littleton, Colo.
Rolfe, Wm. A., Boston.
Root, Joseph E., Hartford, Conn.
Rose, Lewis W., Rochester, N. Y.
Rosenthal, Maurice I., Ft. Wayne, Ind.
Rosser, Charles M., Dallas, Tex.
Rudolph, H. L., Gainesville, Ga.
Runyan, J. P., Little Rock, Ark.
Russell, Walter Burton, Springfield, Mass.
Russell, Thos. P., Oshkosh, Wis.
Ryder, G., Malden, Mass.
Sandberg, Karl F. M., Chicago.
Sarsberger, S. J., Cortland, N. Y.
Sanger, Eugene Boutelle, Bangor, Maine.
Sargent, E., Moline, Ill.
Sarles, W. P., Sparta, Wis.
Saunders, C. J., Fort Dodge, Ia.
Sawyer, Carl W., Marion, Ohio.
Sawyer, Walter S., Fitchburg, Mass.
Sayre, Reginald H., New York. N. Y.
Schachner, August, Louisville, Ky.
Schaeffer, Charles D., Allentown, Pa.
Scannell, David D., Boston.
Schell, Walter, Terre Haute, Ind.
Schlueter, Robert E., St. Louis.
Schirmer, Wm. C., Brooklyn, N. Y.
Seelye, Walter, Worcester, Mass.
Seidler, W. A., Jamaica, Iowa.
Sellers, R. B., Comanche, Tex.
Sever, James Warren, Boston.
Shaffer, O. H., Altoona, Pa.
Shaw, Edwin B., Las Vegas, N. Mex
Shea, Augustus W., Nashua, N. H.
Sheehan, M. D., Stoneham, Mass.
Sherbondy, J. A., Youngstown, Ohio.
Sherk, Henry H., Pasadena, Cal.
Sherman, Frank M., Newton, Mass.
Sherrill, J. Garland, Louisville, Ky.
Shope, E. L., Harrisburg, Pa.
Short, T. W., Elkhart, Ind.
Sibcesky, V. H., Salem, N. H.
Simmons, H. A., Brockton, Mass.
Simpson, Chas. E., Lowell, Mass.
Seekman, Warren D., Manhattan, Kan.
Sheldon, John G., Kansas City, Mo.
Sill, Henry D., Cooperstown.
Silsby, E. B., Rockland, Maine.
Sleeper, F. W., Boston.
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Walker, David Harold, Boston.
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Welty, Cullin F., San Francisco.
White, Leon Edward, Boston.
Yancey, Robert S., Dallas, Tex.
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Section on Pharmacology and Therapeutics.

Abbott, W. C., Chicago.
Adams, Charles, W., Cambridge,
Baer, Almerin W., Chicago.
Benedict, A. L., Buffalo, N. Y.
Burdick, A. S., Chicago.
Butler, James N., New York.
Brown, Percy, Boston.
Chase, C. S., Waterloo, Iowa.
Cohen, Solomon Solis, Philadelphia.
Croftan, A. C., Chicago.
Dickerson, W. L., St. Louis.
Diehl, C. Lewis, Louisville, Ky.
Dorr, Henry L., Philadelphia.
Elsborn, Max, New York.
England, Joseph W., Philadelphia.
Fisher, R. W., Salt Lake City.
French, J. M., Milford, Mass.
Fullerton, E. B., Columbus, Ohio.
Gerstein, Maurice, Boston.

Gifford, John H., Fall River.
Gilbert, R. B., Louisville, Ky.
Hallberg, C. S. N., Chicago.
Hannum, J. W., Ludlow, Mass.
Hill, J. Sutcliffe, Bellows Falls, Vt.
Houghton, E. M., Detroit, Mich.
Hunt, Reid, Washington, D. C.
Hurwitz, Abraham J., Boston.
Hynson, Henry P., Baltimore.
Jenne, J. N., Burlington, Vt.
Johnston, Geo. C., Pittsburg, Pa.
Jones, C. P., Vineland, N. J.
Jones, Philip Mills, San Francisco.
Kebler, Lyman F., Washington, D. C.
Kellogg, Kenneth E., New Britain, Conn.
Kremers, Edward, Madison, Wis.
Knight, Charles E., Kirkland, Mass.
Leonard, Charles Lester, Philadelphia.
Leonard, Edwin, Jr., Jersey City, N. J.
Lewis H. Edwin, New York.
McGee, J. B., Cleveland, Ohio.
Mansfield, James A., Boston.
Morgan, Forde, New York.
Motter, Murray Galt, Washington, D. C.
Nagle, John T., New York.
Osborne, Oliver T., New Haven, Conn.
Piper, Frank, Boston.
Plummer, Frank J., Malden, Mass.
Price, John C., Scranton, Pa.
Puckner, W. A., Chicago.
Randall, G. M., Boston.
Rauschkolb, John, Columbus, O.
Reilly, Thomas F., New York.
Riley, Cassius M., St. Louis.
Ritter, John, Chicago.
Robinson, William J., New York.
Simmons, George H., Chicago.
Slack, Henry R., La Grange, Ga.
Stern, Heinrich, New York.
Stewart, Zella White, Grand Forks, N. Dak.
Stoddard, F. R., Shelburne, Vt.
Spenser, John George, Cleveland, Ohio.
Taylor, C. F., Philadelphia.
Taylor, J. J., Philadelphia.
Thrush, M. Clayton, Philadelphia.
Tompkins, W. W., Charleston, W. Va.
Tracy, Edward A., Boston.
Tyrode, Maurice Vejux, Boston.
Wallace, Frank H., Boston.
Waugh, William Francis, Chicago.
Wescott, W. C., Atlantic City, N. J.
Wheatley, F. G., No. Abington, Mass.
White, Wm. R., Providence, R. I.
Wilbert, M. I., Philadelphia.
Williams, Ennion G., Richmond, Va.
Wood, Horatio C., Jr., Philadelphia.
Yarbrough, Charles C., Detroit, Mich.

Section on Pathology and Physiology.

Aaron, Charles D., Detroit, Mich.
Adler, Isaac, New York, N. Y.
Anderson, August, Lincoln, Neb.
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Baldwin, Frederick A., St. Louis, Mo.
Bartlett, C. J., New Haven, Conn.
Beates, Henry, Jr., Philadelphia, Pa.
Bellamy, William W., Dorchester, Mass.
Bierring, Walter L., Iowa City, Iowa.
Bishop, Louis Favgeres, New York, N. Y.
Black, Stanley P., Pasadena, Cal.
Bolin, J. Albert, Philadelphia, Pa.
Bowditch, H. P., Boston, Mass.
Cannon, Walter B., Cambridge, Mass.
Clements, Joseph, Nutley, N. J.
Coplin, W. M. L., Philadelphia, Pa.
Christian, Henry A., Boston, Mass.
Dearborn, George Van Ness, Boston, Mass.
Erlanger, Joseph, Baltimore, Md.
Folin, Otto, Cambridge, Mass.
Fox, Herbert, Philadelphia, Pa.
Frey, Max von, Wuerzburg, Germany.
Frank, Shepherd Ivory, Waverley, Mass.
Fulton, Frank T., Providence, R. I.
Gay, Frederick P., Boston, Mass.
Graue, Frank, New York, N. Y.
Gould, E. H., Springfield, Mass.
Hall, Frank J., Kansas City, Mo.
Hall, Winfield S. Chicago.
Harris, H. F. Atlanta, Ga.
Hemmeter, John C., Baltimore, Md.
Hirsh, Jose L., Baltimore, Md.
Hodges, C. F., Worcester, Mass.
Jack, Geo. N., Denew, N. Y.
Jackson, Fred K., Burlington, Vt.
Jackson, J. Henry, Barre, Vt.
Kinyoun, J. J., Glenolden, Pa.
Kirk, W. H., Pitts, Pa.
Kotz, A. L., Easton, Pa.
Knabe, Helen, Indianapolis, Ind.
Ladd, Louis W., Cleveland, Ohio.
Litterer, Wm., Nashville, Tenn.
Loeb, Leo, Philadelphia, Pa.
Longstreth, Morris, Philadelphia,
Longcope, W. T., Philadelphia, Pa.
Love, J. King, Easton, Pa.
Lombard, Warren P., Ann Arbor, Mich.
Lynch, J. L., Winona, Minn.
MacCallum, W. G., Baltimore, Md.
Macdonald, William G., Boston, Mass.
McClintock, Chas. T., Detroit, Mich.
McFarland, Joseph, Philadelphia.
Mallory, Frank B., Boston, Mass.
Mandlebaum, F. S., New York.
Meader, Isabel M., Watertown, N. Y.
Meyer, Gustave M., New York.
Meltzer, S. J., New York, N. Y.
Mortimer, W. Golden, New York.
Ohlmacher, A. P., Detroit, Mich.
Orton, Samuel T., Columbus, Ohio.
Ophüls, William, San Francisco, Cal.
Page, Calvin G., Boston, Mass.
Porter, Wm. T., Boston, Mass.
Pritchard, William Percival, Fall River, Mass.
Rankin, Watson S., Wake Forest, N. C.
Reitman, Ben. L., Chicago, Ill.
Rhodes, Frederick, A., Pittsburg, Pa.
Rich, Charles E., Lynn, Mass.
Robertson, H. E., Red Wing, Minn.
Roseman, M. J., Washington, D.C.
Redfearn, Joseph, Hudson, Mass.
Rosenberger, Randle C., Philadelphia, Pa.
Ruediger, Gustav F., Chicago, Ill.
Salant, William, New York, N. Y.
Smith, Claude A., Atlanta, Ga.
Smith, Theobald, Boston, Mass.
Smith, William T., Hanover, N.H.
Southard, E. E., Cambridge, Mass.
Steiner, Walter R., Hartford, Conn.
Stengel, Alfred, Philadelphia, Pa.
Stone, Warren B., Schenectady, N. Y.
Stevens, Harold Elmer Ellsworth, Boston, Mass.
Turner, Edward L. D., Providence, R. I.
Tyzzer, Ernest Edward, Wakefield, Mass.
Van Cott, Joshua M., Brooklyn, N. Y.
Vaughan, Victor C., Ann Arbor, Mich.
Welch, William H., Baltimore, Md.
Wenstrand, D. E. W., Milwaukee, Wis.
Wilson, Louis B., Rochester, Minn.
Wolbach, S. Burt, Boston.
Wood, Francis Carter, New York.
Wynn, Frank B., Indianapolis, Ind.

Miscellaneous.

A. THOSE WHO EXPRESSED NO PREFERENCE FOR ANY SECTION.

Abbe, Frederick R., Boston.
Adams, John D., Boston, Mass.
Adams, W. H., Northampton, Mass.
Adams, Wm C., Taunton, Mass.
Adams, Chas. S., Wollaston, Mass.
Ahearne, C. A., Lynn, Mass.
Ahearne, C. A. Jr., Salem, Mass.
Alexander, Clara J., Boston, Mass.
Alexander, Jas. R., Charlotte, N. C.
Aldrich, Albert C., Somerville, Mass.
Allen, Horatio C., New Bedford, Mass.
Allisons, Nathaniel, St. Louis.
Ames, Justin D., Norridgewock, Me.
Andrews, Harold V., Boston.
Ashley, W. W., Ouray, Colo.
Ayer, James B., Boston, Mass.
Bacon, Jonas E., Brockton, Mass.
Bacon, Newton S., Cambridge, Mass.
Baheman, F. A., Franklin, N. H.
Bailey, Wm. T., Boston.
Balboni, Gerardo M., Boston.
Baldwin, F. W., Danvers, Mass.
Baldwin, Herman T., Chestnut Hill, Mass.
Ballou, Charles O., Providence, R. I.
Barker, James F., Albany, N. Y.
Barnes, Allan F., Cambridge, Mass.
Barton, George C., Minneapolis, Minn.
Barstow, Henry T., Boston, Mass.
Bartlett, Charles Watson, Marshfield, Mass.
Bartlett, O. L., North Pittsfield, Mass.
Barrows, Benj. S., Hartford, Conn.
Bateman, Frank Elliot, Somerville, Mass.
Beaton, A. A., Franklin, N. H.
Benner, H. O., So. Framingham, Mass.
Bernard, B. L., Boston, Mass.
Berry, John J., Portsmouth, N. H.
Binney, Horace, Boston, Mass.
Blanchard, Irving, D., Hartford, Conn.
Blackwood, Jas. M., Newcastle, Pa.
Black, Frank W., Ligonier, Ind.
Bold, Valentine J., Philadelphia.
Bowles, Geo. H., Boston, Mass.
Bowen, J. T., Boston, Mass.
Boyd, Frank P., Northfield, Minn.
Bradley, William Edwin, Estherville, Iowa.
Bradford, E. H., Boston.
Bradshaw, Arthur B., Providence, R. I.
Bragg, Francis A., Foxborough, Mass.
Bragg, Leslie Raymond, Webster, Mass.
Brazill, Frank H., Greenville, R. I.
Briggs, A. R., Ashaway, R. I.
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Broughton, Arthur Nicholson, Boston, Mass.
Breck, Samuel, Boston, Mass.
Brown, D. C., Danbury, Conn.
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Bower, Herbert H., Pleasant City, Ohio.
Borne, J. A., Everett, Mass.
Brickett, Beatrice H., Newton Center, Mass.
Brown, E. E., Everett, Mass.
Bromley, H. F., Danbury, Conn.
Brush, Frederic, Boston, Mass.
Brownell, F. V., Canajoharie, N. Y.
Bryant, Lewis L., Cambridge, Mass.
Bullard, Marguerite J., Putnam, Conn.
Bullard, William N., Boston.
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Butler, Richard B., Fall River, Mass.
Calsse, G. E., Lowell, Mass.
Callahan, Joseph Thomas, Woburn, Mass.
Calkin, B. H., Boston.
Candlish, A. H., New York.
Carriel, H. B., Jacksonville, Ill.
Carolin, Wm. T., Lowell, Mass.
Carpenter, E. G., East Greenwich, R. I.
Cantrell, C. E., Greenville, Tex.
Cavill, Lizzie Maud, Somerville, Mass.
Chase, Edwin L., Shrewsbury, Mass.
Chandler, Henry B., Boston.
Chandler, N. F., Medford, Mass.
Chartens, M. A., Worcester, Mass.
Charter, L. R., West Union, W. Va.
Cholerton, Herbert, Somerville, Mass.
Cheney, Frederick L., Wayne, Maine.
Chute, Arthur L., Boston.
Church, Chas. A., Millbury, Mass.
Clapp, Arthur M., Springfield, Mass.
Clark, Leonard B., Waverly, Mass.
Clark, O. H., Kalamazoo, Mich.
Cleaves, Jas. E., Medford, Mass.
Cluner, C. C., Boston.
Cobb, Farrar, Boston.
Cochrane, J. D., Saco, Maine.
Cook, E. C., York, Maine.
Cooly, Abbott, Chicopee, Mass.
Cooper, Almon, Brookline, Mass.
Collins, Orville W., South Framingham, Mass.
Commons, Ernest L., Richmond, Ind.
Condict, Arthur W., Dover, N. J.
Cook, Hugh F., Newark, N. J.
Connell, Arthur J., Fall River, Mass.
Councilman, W. L., Bay State Road, Mass.
Costello, John H., Boston.
Crawford, Sarah M., Boston.
Crisler, J. Jackson, Miss.
Crocker, John M., Cambridge, Mass.
Crafts, Nicholas M., North Adams, Mass.
Crosby, L. M., Boston.
Crowell, Andrew J., Charlotte, N. C.
Crum, Charles W. R., Jefferson, Md.
Crutcher, J. R., Memphis, Tenn.
Culbertson, N. W., Massillon, O.
Cushman, Andrew B., So. Dartmouth, Mass.
Cushman, Geo. T., Boston.
Curel, C. L., Pittsburg, Pa.
Cutts, Harry M., Brookline, Mass.
Daniel, Edwin A., Boston.
Davis, Gwilym G., Philadelphia.
Davidson, H. D., Springfield, Mass.
Davis, Josephine G., New York.
Day, Herbert C., Exeter, N. H.
Day, James A., Waltham, Mass.
Deane, F. Russell, Medford, Mass.
Delaney, Martin D., Alexandria, Va.
Devine, William H., Boston.
Dennett, Alonzo G., Lowell, Mass.
Dinsmoor, S. M., Keene, N. H.
Dipon, Wallace W., Portland, Me.
Dixon, Robt. B., Boston.
Dodge, Arthur M., Newton Center, Mass.
Doolittle, Edgar B., Hazelton, Pa.
Dubois, Eoline Church, Cambridge, Mass.
Deckering, Florence W., Boston.
Duckworth, Milton, Carolina, R. I.
Dunham, S. A., Buffalo, N. Y.
Dutcher, W. A., Boston.
Drake, Ervin T., Franklin, N. H.
Dreyfrs, Edna W., Brookline, Mass.
Drohan, Jas. H., Brookline, Mass.
Earde, C. P., New York.
Eaton, W. G., Lowell, Mass.
Edgerton, Howard K., Lebanon, Tenn.
Edson, R. O'M., Boston.
Elbert, Samuel G., Wilmington, Del.
Ellis, A. G., Philadelphia.
Ellsworth, S. W., Quincy, Mass.
English, W. F., Saginaw, Mich.
Evans, Britton D., Morris Plains, N. J.
Everett, E. E., Boston.
Ewell, Ernest W., Lancaster, N. Y.
Fallon, F. F., Worcester, Mass.
Farnsworth, D. B., Springfield, Mo.
Farrington, Leander M., Brookline, Mass.
Faulkner, Herbert K., Keene, N. H.
Fenwick, J. B., Chelsea, Mass.
Ferguson, G. H., Saginaw, Mich.
Fernald, Chas. A., Boston.
Friedman, Leo Victor, Boston.
Finn, Edward W., Dedham, Mass.
Fiske, Eustace L., Fitchburg, Mass.
Folsom, Chas. F., Boston.
Forbes, Edwin B., Detroit, Mich.
Forster, Robert W., Lawrence, Mass.

Fourtin, E. R., Waltham, Mass.
Fox, William Yale, Taunton, Mass.
Francis, Carleton S., Brookline, Mass.
French, L. Melville, Manchester, N. H.
Gregory, Geo. A., Boothbay Harbor, Maine.
Frets, H. G., Philadelphia.
Gallinger, Ralph E., Concord, N. H.
Gallgher, Eugene T., Boston.
Gaivin, Augustus H., Salem, Mass.
Garber, Frank W., Muskegon, Mich.
Gardner, Archibald Robert, Lowell, Mass.
Gardner, Charles M., Pittsfield, Mass.
Gardner, Harriet M., Cambridge, Mass.
Garland, George M., Boston.
Gaver, W. E., Mt. Airy, Md.
Gavin, John H., Boston.
Gavin, M. T., Boston.
Gay, Fritz W., Malden, Mass.
Geddes, Louis A. O., Beverly, Mass.
Gilbert, Daniel D., Boston.
Gillespie, R. L., Portland, Ore.
Gill, M. H., Hartford, Conn.
Glass, James, So. Framingham, Mass.
Gomberg, Max B., Providence, R. I.
Goodman, Samuel, Boston.
Goster, N. R., Baltimore.
Grandson, Wilfred G., Charlestown, Mass.
Grant, J. Edward, New York.
Greeley, Jane Lincoln, Jamestown, N. Y.
Green, James S., Boston.
Greene, Ransom A., Lowell, Mass.
Greene, Thomas F., Boston.
Greenley, T. W., Baltimore.
Gregory, William E., Stroudsburg, Pa.
Griffin, Nathan L., Bradford, N. H.
Griswold, Vernon M., Fredonia, N. Y.
Grosvenor, Joseph W., Buffalo, N. Y.
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Hamilton, E. A., Columbus, Ohio.
Hamlin, E. F., Statesville, R. I.
Hammond, Roland, Providence, R. I.
Hammond, Wm. J., Boston.
Handy, Harvey T., Apponang, R. I.
Hannaford, Chas. Wm., Portsmouth, N. H.
Hapgood, Lyman S., Cambridge, Mass.
Harlow, G. A., Tyngsboro, Mass.
Harnley, G. H., Barnstead, N. H.
Harriman, Pully, Lynn, Mass.
Harrington, Francis B., Boston.
Hatcher, Robt. A., New York.
Hatchett, William J., Somerville, Mass.
Hawkins, F. L., Meredith, N. H.
Hayes, C. H., Pittsburg, Pa.
Hayes, W. L., Cambridge, Mass.
Head, W. C., Johns, Ala.
Heaton, Thurman H., Cambridge, Mass.
Heffernan, M. T., Decatur, Ill.
Herb, Isabella C., Oshkosh, Wis.
Herriman, W. D., Chicago.
Hewitt, Wm. O., Attleboro, Mass.
Heyward, H. H., Tunbridge, Vt.
Hill, E. Dwight, Plymouth, Mass.
Hodgdon, Andrew H., Dedham, Mass.
Holt, H. Allen, Maine.
Honburg, W. O., Everett, Mass.
Hood, Mary G., Newton Center, Mass.
Hooker, Edward D., Arlington, Mass.
Houghton, S. A., Brookline, Mass.
Howe, Oliver H., Cohassett, Mass.
Howell, Thomas, Worcester, Mass.
Howland, Joseph B., Gardner, Mass.
Hunt, Wm. O., Newton, Mass.
Hunting, Nathaniel S., Quincy, Mass.
Hurley, Daniel B., Boston.
Hutchinson, C. P., Auburndale, Mass.
Ickes, E. M., Fremont, Ohio..
Ingalls, G. H., Boston.
Irish, J. C., Lowell, Mass.
Jackson, A. J., New Jersey.
Jackson, Charles W., Monson, Mass.
Jennings, Curtis H., Fitchburg, Mass.
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Jones, Geo. W., Chelsea, Mass.
Jones, Gilbert Norris, Wellesley Hills, Mass.
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Joslin, Fisher M., Voorheesville, N. Y.
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Kelley, Jacob S., Providence, R. I.
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Kern, L. C., Waverly, Iowa.
Kingsbury, Walter W., Malden, Mass.
Kinson, H. R., Filchville, Vt.
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Kyle, E. H., Ithaca, N. Y.
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Lawler, O. C., Chicago.
Lambert, F. De Forest, Salem, Mass.
Lamoureux, J. E., Lowell, Mass.
Langdon, Robert M., Englewood Cliffs, N. J.
Lard, Sidney Archer, Ipswich, Mass.
Lawrence, Arthur A., Natick, Mass.
Leahy, Thomas J., Cambridge, Mass.
Leard, John S. H., Boston.
Leavitt, B. C., Denver, Colo.
Leele, Julia E., New Haven, Conn.
Legg, Arthur T., Boston.
Lemire, Wellard W., Lynn, Mass.
Leonard, Henry Fiske, Boston.
Leslie, C. F., Clyde, Kan.
Lett, Isidore, Boston.
Lewis, Maurice L., New York.
Lewis, Philip, Gorham, Maine.
Little, John M., Jr., Boston.
Loveland, J. E., Middletown, Conn.
Lowber, Alex, Wilmington, Del.
Lowd, H. M., Swampscott, Mass.
Lowell, Alverne P., Fitchburg, Mass.
Luehr, Edward, So. Chicago.
Lyman, Frank, Duluth, Minn.
Lyons, Herbert H., Fitchburg, Mass.
MacArthur, Charlotte B., Willard, N. Y.
MacArthur, George E., Ipswich, Mass.
McAdams, J. P., Lowell, Mass.
McBride, James H., Pasadena, Mass.
McCormick, Thos. J., Boston.
McCrimmon, F. W., Butte, Mont.
McDonald, James S., Boston.
McEvoy, George A., Roxbury, Mass.
McFee, N. D., Haverhill, Mass.
McIntire, Herbert R., Cambridge, Mass.
McKenna, Francis P., Boston.
McKenzie, John Robert, Cambridge, Mass.
McKnight, W. B., Mansfield, Tex.
McLeod, J. Scott, Boston.
McMahan, Wm. H., Boston.
McMichael, W. B. Y., Boston.
McNulty, John J., New York.
Madden, W. D., Boston.
Magee, John A., Lanman, Mass.
Mains, Charles F., Boston.
Mateur, Hugh D., Haverhill, Mass.
Malone, Charles, Boston.
Manning, Hugh R., Louisville, Ky.
Mansfield, Henry T., Needham, Mass.
Marion, Horace E., Boston.
Martin, Jos. D., New Orleans, La.
Mason, Lewis D., Brooklyn, N. Y.
Mayberry, F. E., Boston.
Medalia, Leon S., Boston.
Melvin, J. T., Lagnache, Colo.
Meriwether, C. P., Walnut Ridge, Ark.
Metcalf, B. H., Winthrop, Mass.
Middleton, Willis J., Quincy, Mass.
Miller, Vesta D., Needham, Mass.
Milliken, Herbert E., Waterville, Maine.
Minot, Charles S., Boston.
Minot, James Jackson, Boston.
Mitchell, Ezra, Lancaster, N. H.
Moffitt, Herbert C., San Francisco.
Mondino, José F., Montevideo, Uraguay Rep.
Moore, Alfred M., Brighton, Colo.
Moore, Elmer E., East Providence Center, R. I.
Moore, George Colton, Boston.
Morey, Gustavus B., Manchester, N. H.
Morrison, John S., Lafayette, Ind.
Morse, Charles A., New Market, N. H.
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Murphy, Charles O., New York.
Murphy, Fred T., Boston.
Murphy, Timothy J., Boston.
Nevers, Harry H., Bingham, Me.
Newbecker, Minerva M., Ord, Neb.
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Novy, F. G., Ann Arbor, Mich.
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Nute, Marion, Boston.
Nute, William H., Exeter, N. H.
O'Connor, John J., Holyoke, Mass.
Odell, R. W., Detroit, Mich.
Olin, F. H., Southbridge, Mass.
O'Malley, W. H., Kinsman, Ill.
Osborne, Caroline A., Worcester, Mass.
Osgood, Robert B., Boston.
O'Sullivan, John J., Lawrence, Mass.
Ovalock, M. G., Worcester, Mass.
Palmer, Lewis M., South Framingham, Mass.
Parker, Albert Munro, Boston, Mass.
Parker, Walter H., Boston.
Parks, S. H., Reading, Mass.
Pattee, W. H., Manchester, N. H.
Paten, Chas. C., Boston.
Patterson, C. F., Rye, N. H.
Patrick, Hugh, Chicago.
Payne, S. M., New York.
Peables, A. M., Auburn, Maine.
Peabody, F. B., Richmond, Me.
Pease, B. D., Greenville, N. H.
Pease, Edward Allen, Boston.
Perkins, Frank, Manchester, N. H.
Perkins, Frank B., West Derry, N. H.
Perry, Henry J., Boston.
Peters, John M., Providence, R. I.
Phillips, James Lee, Providence, R. I.
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Piersol, Geo. A., Philadelphia.
Pierson, John, Hartford, Conn.
Pillsbury, Chas. W., Saco, Maine.
Pills, Rufus, Murfreesboro, Tenn.
Plimpton, Lewis Henry, Norwood, Mass.
Plummer, Frank W., Malden, Mass.
Porteus, Jas. S., Taylor, Pa.
Pothier, Joseph C., New Bedford, Mass.
Potter, F. W., So. Framingham, Mass.
Potter, William H., Boston.
Pratte, Arthur A., Keene, N. H.
Presley, W. J., Allendale, Mich.
Provan, Robert, Boston.
Putnam, Charles P., Boston.
Putnam, Ralph, Winchester, Mass.
Quint, Norman P., West Midway, Mass.
Record, Wellington, Wollaston, Mass.
Reed, Charles A. L., Cincinnati, Ohio.
Rees, Chas. M., Charleston, S. C
Reynolds, H. M., Boston.
Rice, Robert A., Fitchburg, Mass.
Richarcson, Anna G., Boston.
Richardson, William L., Boston.
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Riely, Compton, Baltimore.
Ring, A. H., Arlington Heights, Mass.
Ripley, Fred J., Brockton, Mass.
Rollins, Chandler, Boston.
Robbins, Wm. Bradford, Boston.
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Rogers, Charles C., Farmington, N. H.
Rogers, O. T., Boston.
Rose, Alanson D., Providence, R. I.
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Sabine, G. K., Brookline, Mass.
Sala, St. Elmo M., Rock Island, Ill.
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Sanders, W. H., Montgomery, Ala.
Sargent, Geo. A., Boston.
Saunders, Geo., Superior, Wis.
Scales, Robert B., Dorchester, Mass.
Schneider, J. P., Palmer, Mass.
Schöney, L., New York.
Schulte, Baltz Overton, Louisville, Ky.
Sears, H. E., Beverly, Mass.
Sell, E. H. M., Summit, N. J.
Sellers, Ira J., Birmingham, Ala.
Seymour, F. W., Boston, Mass.
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Shea, John J., Beverly, Mass.
Shea, Michael I., Chicopee Falls, Mass.
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Sherman, H. J., Cleveland, Ohio.
Shiels, George Franklin, New York.
Silver, C. D., Plattsburg, N. Y.
Simmons, Channing C., Boston.
Simmons, H. M., Baltimore.
Sisler, G. W., Water Valley, Miss.
Skelton, C. W., Providence, R. I.
Skinner, John Oscar, Washington, D. C.
Slaymaker, J. M., Philadelphia.
Smith, Alfred C., Brockton.
Smith, Anna G., Toledo, Ohio.
Smith, William H., Boston.
Smith, F. L., Stafford Springs, Conn.
Smith, H. W., N. Scituate, R. I.
Smith, P. M., Boston.
Smith, R. S., Saegertown, Pa.
Smithwick, Marsena, P., Boston.
Spaulding, Roger, Duxbury, Mass.
Specht, Edmund E., New York.
Spofford, Henry M., Batavia, N. Y.
Sprowls, J. N., Claysville, Pa.
Sprowls, N. J., Northfield, Mass.
Stack, Chas. F., Hyde Park, Mass.
Staples, John W., Franklin, N. H.
Staples, C. H., Malden, Mass.
Stearns, Robt. T., New Bedford, Mass.
Stedman, Joseph C., Boston.
Stemsred, A. A., Dawson, Minn.
Stevens, F. H., Tenants Harbor, Maine.
Stevens, Edmund H., Cambridge, Mass.
Stevens, George B., Boston.
Stevens, Chas. B., Worcester, Mass.
Stewart, J. O., Cedarville, Ohio.
Stickney, Edwin P., Arlington, Mass.
Stickney, Geo. A., Beverly, Mass.
Stickney, V. H., Dickinson, N. D.
Stinchfield, A. W., Rochester, Minn.
Stodder, C. W., Marshfield Hills, Mass.
Storrs, Eckley R., Hartford, Conn.
Stubbs, H. J., Wilmington, Del.
Stubbs, Ralph P., Wilmington, Del.
Sturgis, John I., New Gloucester, Maine.
Sullivan, M. B., Dover, N. H.
Sullivan, Timothy D., Calais, Maine.
Swan, Eugene L., Brooklyn, N. Y.
Swan, Wm. D., Cambridge, Mass.
Swasey, Wm. B., Cornish, Md.
Sweetair, C. L., Lowell, Mass.
Tanguay, J. Edgar, Woonsocket, R. I.
Taylor, J. George, Brookline, Mass.
Taylor, T. M., New York.
Tefft, Benj. F., Jr., Riverpoint, R. I.
Thayer, Augustus S., Portland, Maine.
Thomas, Benjamin, Palo Alto, Cal.
Thomas, G. F., Peebles, Ohio.
Thompson, Charles O., Boston.
Thompson, J. N., Boston.
Thorn, E. C., Jr., Deerfield, Mass.
Thornton, James Brown, Boston.
Tigh, Frederick, Newburyport, Mass.
Tilly, Wm. T., Pryor Creek, I. T.
Towne, Geo. Scott, Saratoga, N.Y.

V
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Trautman, Rodney E., Logansport, Ind.
Trask, John W., Lynn, Mass.
Turman, A. E., Memphis, Tenn.
Turner, B. F., Memphis, Tenn.
Valleau, A. J., Wolcott, Vt.
Vanderhoof, F. D., Phelps, N. Y.
Vander Laau, John, Muskegon, Mich.
Vickery, Lucia, F., Boston.
Tobel, von F., Lebanon, N. H.
Walker, Robt. J., Chicago.
Waller, Charles Curtis, No. Troy, Vt.
Walker, Eloise, Hudson, N. Y.
Walker, W. Dacre, Peabody, Mass.
Wallin, Mathilda K., New York.
Walsh, Joseph, Augusta, Maine.
Ward, Parker M., Houlton, Me.
Ward, S. R., Richmond, Ill.
Washington, Walter S., Newark, N. J.
Wathen, Wm. H., Louisville, Ky.
Watkins, R. Q., New York.
Wayland, A. Bledsoe, Crozet, Va.
Webber, Amos P., New Bedford, Mass.
Webber, Norman B., Manchester, N. H.
Webber, Wallace E., Lewiston, Maine.
Webster, George A., Boston.
Welch, H., Winsted, Conn.
Welch, John F., Quincy, Mass.
Welch, W. C., New Haven, Conn.
Wells, W. Scott, Adamsville, R. I.
Wentworth, Arthur H., Boston.
Wentworth, Ernest, Auburn, Me.
Wetherby, B. J., Wilkesbarre, Pa.
Wheatley, L. F., Meriden, Conn.
Wheeler, J. M., Burlington, Vt.
Whitaker, Clarence W., Worcester, Mass.
Whitaker, Wm. J., Pryor Creek, I. T.
White, R. C., Willimantic, Conn.
Whitney, H. B., Denver, Colo.
Whittier, F. N., Brunswick, Me.
Whoriskey, John J., Cambridge, Mass.
Wilkinson, A. M., St. James, Mich.
Willard, W. G., Chicago.
Williams, Francis H., Boston.
Williams, Frank P., Boston.
Williams, Geo. S., Muskegon, Mich.
Williams, Harold, Boston.
Wood, Albert, Worcester, Mass.
Woodman, Daniel N., Yarmouth, Maine.
Woodward, Johnson R., Oxford, Mass.
Woodworth, D. S., Fitchburg, Mass.
Worsham, B. M., Austin, Texas.
Yates, Cora G., Pawtucket, R. I.
York, George Wm., Buffalo, N. Y.
Zanes, D. Wayland, Boston.

Miscellaneous.

B. THOSE WHO MARKED MORE THAN ONE SECTION.

Adams, John Boston.
Albee, George M., Worcester, Mass.
Allen, Bradford, Nashua, N. H.
Auten, Frank E., Belleville, Ill.
Averell, Charles W., North Reading, Mass.
Baker, David E., Newtonville, Mass.
Baldwin, Sanford C., S. Framingham, Mass.
Baird, J. M., Boston.
Barney, B. A., Hornell, N. Y.
Barrett, Albert M., Ann Arbor, Mich.
Bayley, N. B., Haverstraw, N. Y.
Beam, David R., Conshohocken, Pa.
Burt, Frank L., Boston.
Bicknell, Ralph E., Swampscott, Mass.
Blankenhorn, H., Orrville, Ohio.
Boutwell, Horace Keith, Winchester, Mass.
Bontecou, R. B., Troy, N. Y.
Boynton, Perry S., New York.
Buettner, John J., Syracuse, N. Y.
Butts, Harry, Bangor, Maine.
Burt, J. D., Farmersville, Texas.
Burlingame, D. E., Elgin, Ill.
Bradley, W. J., Cedar Rapids, Ia.
Brawley, R. V., Salisbury, N. C.
Briggs, Henry Harrison, Asheville, N. C.
Brailsford, A. Willie, Mullins, S. C.
Brock, R. V., Waynesburg, Pa.
Brown, Francis H., Boston.
Brown, Nathan W., Toledo, Ohio.
Cabot, Arthur T., Boston.
Cadwell, C. T., Poughkeepsie, N. Y.
Campbell, M. G., Atlanta, Ga.
Carbaugh, Eugene, Kansas City, Mo.
Cary, E. H., Dallas, Tex.
Carrall, James W., Buffalo, N. Y.
Carruth, Sidney S., Dorchester, Mass.
Cathcart, R. S., Charleston, S. C.
Chadwick, Henry D., Waltham, Mass.
Chambers, T. R., Jersey City, N. J.
Chamberlain, M. L., Boston.
Chapman, W. L., Providence, R. I.
Chase, Julian A., Pawtucket.
Clarke, Augustus P., Cambridge, Mass.
Cleland, James, Jr., Detroit, Mich.
Clough, O. F., Poultney, Vt.
Cobb, Charles Henry, Boston.
Colt, Henry, Pittsfield, Mass.
Conner, Annie L., Philadelphia.
Conboy, Philip, Rochester, N. Y.
Congdon, Charles E., Nashua, N. H.
Connor, Chas. F., New Bedford,
Corser, J. B., Scranton, Pa.
Currie, J. Z., Cambridge, Mass.
Craton, Samuel Boyce, Syracuse, N. Y.
Craig, Joseph D., Albany, N. Y.
Croskey, John Welsh, Philadelphia.
Cronin, Thomas J., Worcester, Mass.
Crumb, C. W., Utica, N. Y.
Cronin, Michael J., Boston.
Croston, J. F., Haverhill, Mass.
Demarest, Fred F. C., Passaic, N. J.
Dickeson, Morton P., Media, Pa.
Doty, E. A., Oxford, Iowa.
Dolan, W. A., Fall River, Mass.
Dougherty, C. G., Paris, Ky.
Dougherty, Thos. J., Somerville, N. H.
Duckett, John Davis, Houston, Texas.
Dwinell, W. G., Pawtucket, R. I.
Eagleton, Wells P., Newark, N. J.
Eastman, F. P., South Bend, Ind.
Edwards, G. P., Nashville, Tenn.
Ellis, Dion S., Worcester, Mass.
Ely, William S., Rochester, N. Y.
Ewen, W. L., Alloway, N. J.
Fair, John F., Cambridge, Mass.
Farr, E. L., Boston.
Fay, J. M., Northampton, Mass.
Feeley, Charles P., Cambridge, Mass.
Fish, Fred Starr, Lime Ridge, Wis.
Fishbein, Louis, Boston.
Fletcher, R. W., South Boston.
Formad, Marie K., Philadelphia.
Foster, E. E., New Bedford, Mass.
Foster, John M., Denver, Colo.
Foster, W. Brownley, Richmond, Va.
Franz, A., Holyoke, Mass.
French, Charles E., Lowell, Mass.
French, Charles L., Clinton, Mass.
Garland, W. R., Plymouth, N. H.
Gildersleeve, C. C., E. Woodstock, Conn.
Goodman, Thos. B., Cobden, Ill.
Gould, Alfred H., Boston.
Goux, L. J., Detroit, Mich.
Gorham, Geo. H., Bellows Falls, Vt.
Gray, F. S., Troy, Vt.
Grant, Jas. G., Akron, Ohio.
Grant, Geo. H., Richmond, Ind.
Greeley, G. H., Merrimack, N.H.
Greene, Edward M., Boston.
Griggs, John B., Stamford, Conn.
Gwathmey, James T., New York.
Haddock, Charles W., Beverly, Mass.
Hastings, T. W., New York.
Hayes, Frederick L., Brookline, Mass.
Harper, Jas. G., Carbondale, Pa.
Hart, Frank E., Canton, Ohio.
Harrold, E. O., Marion, Ind.
Hawley, A. W., Seattle, Wash.
Hayes, E. S., Eau Claire, Wis.
Hebbard, Ellary C., Boston.
Highsmith, J. F., Fayetteville, N. C.
Hill, J. Frederick, Waterville, Maine.
Hodges, Fletcher, Indianapolis, Ind
Hodgdon, E. P., Laconia, N. H.
Horne, B. Frank, Conway, N. H.
House, Charles F., Painesville, Ohio.
Howard, C. W., Shoreham, Vt.
Howard, E. Clarence, Philadelphia.
Howe, Joseph D., Cheshire, Mass.
Huddle, Garland E., Bowling Green, Ky.
Hughes, Laura A. C., Boston.
Huntington, Geo., Hopewell, Jct., N. Y.
Jackson, A. W., Milford, Mass.
Johnson, Cyrus U., West Berkshire, Vt.
Joves, Arthur T., Providence,
Jervey, J. W., Greenville, S. C.
Kassabian, Nathan H., Coopersville, Mich.
Kelley, Joseph H., Boston.
Kelley, Daniel J., Worcester, Mass.
King, Chas. Lee, Pasadena, Cal.
Kline, W. J. K., Greensburg, Pa.
Kittridge, Frank E., Nashua, N. H.
Kirkpatrick C. F., Ashland, Neb.
Kosmak, Geo. W., New York.
Kuhn, Chas. F., Detroit, Mich.
Leahey, George H. A., Lowell, Mass.
Lee, Edward Wallace, New York.
Lee, Jack, Columbus, Ky.
Lindley, D. C., New Castle, Pa.
Lockhart, Joseph S., Cambridge, Mass.
Lovell, D. B., Worcester, Mass.
Lowney, John F., Fall River, Mass.
Lynch, Robert J., Bridgeport, Conn.
Mackie, Geo., Anteson, Mass.
Magee, R. S., Topeka, Kan.
Marsh, Arthur W., Worcester, Mass.
Marshall, N. M., Portland, Me.
McAllister, J. C., Ridgway, Pa.
McElfarth, C. W., Baltimore.
McIntosh, J. R., St. John, N. B.
McKeeby, W. C., Syracuse, N. Y.
McNaughton, F. H., Denver, Colo.
McRady, F. S., Petersburg, Tenn.
Meisenbach, A. H., St. Louis.
Morgan, Chas. E., Somerville, Mass.
Moulton, W. B., Portland, Maine.
Morse, Vernon H. C., Cambridge, Mass.
Murphy, Frances C., Boston.
Munroe, J. P., Davidson, N. C.
Newhall, Herbert W., Lynn, Mass.
Neuman, Leo H., Albany, N. Y.
Nichols, E. M., Barton, Vt.
Nichols, J. T. G., Cambridge, Mass.
Norris, Albert L., Cambridge, Mass.
Norris, Albert P., Cambridge, Mass.
Northley, H. S., Joliet, Ill.
O'Connor, F. H., Brattleboro, Vt.
Otis, E. F., Lake George, N. Y.
Otis, Edward O., Boston.
Panzner, E. J., Detroit, Mich.
Partridge, H. G., Providence, R. I.
Paulish, Andrew S., Kansas City, Kan.
Peck, George A., New Rochelle, N. Y.
Peck, A. T., Spencer, Mass.
Pennell, W. J., Auburn, Maine.
Pettit, A. W., Nashua, N. H.
Phillips, C. J., Chicago.
Pond, Gardner Perry, San Francisco.
Prescott, C. D., New Bedford, Mass.
Prescott, Henry D., New Bedford, Mass.
Purinton, H. H., Lewiston, Me.
Putnam, W. E., Whiting, Ind.
Pyfer, Howard F., Norristown, Pa.
Quinby, Thos. F., Minneapolis, Minn.
Richardson, Chas. H., Pittsfield, Mass.
Ring, Henry W., New Haven, Conn.
Robinson, W. D., Philadelphia.
Rogers, John, New York.
Ross, George G., Philadelphia.
Rose, John H., Hartford, Conn.
Rose, Henry A., Fall River, Mass.
Round, Arthur M., Norton, Mass.
Rowe, G. D., Boone, Iowa.
Rowen, Henry S., Boston.
Rucker, W. C., Vineyard Haven, Mass.
Rumi, W., Cedar Rapids, Iowa.
Sachs, Bernard, New York.
Sanborn, G. P., Boston.
Sanderson, A. J., San Francisco.
Sanes, K. I., Pittsburg, Pa.
Scanian, Thos. J., Boston.
Schell, J. T., Philadelphia.
Schuffield, H. M., Canton, Ohio.
Sedgwick, Otis White, Wales, Mass.
Schneck, Jacob, Mt. Carmel, Ill.
Sheffield, Herman B., New York.
Shirk, C. W., Cornwall-on-Hudson, N. Y.
Silver, Henry W., New York
Simmons, B. B., Talledega, Ala.
Smith, Owen, Portland, Maine.
Smirnow, Louis, Bridgeport, Conn.
Snow, Morton, Chicago.
Southard, W. F., San Francisco.
Sullivan, Edward C., Brooklyn, N. Y.
Sullivan, F. A., Haverhill, Mass.
Stein, Geo. W., Norristown, Pa.
Stone, D. E., Mt. Pleasant, Md.
Stone, H. H., Phoenix, Ariz.
Stuart, Francis H., Brooklyn, N. Y.
Taylor, James, Jr., Worcester, Mass.
Tinkham, H. C., Burlington, Vt.
Tirry, C. C., South Bend, Ind.
Thompson, David, Denver, Colo.
Thomson, Wm. J., Portage, Wis.
Totman, D. M., Syracuse, N. Y.
Tower, Frederick R., Boston.
Townsend, David, Brookline, Mass.
Truesdale, Philemon E., Fall River, Mass.
Tully, Edw. J., Fitchburg, Mass.
Walker, J. B., Effingham, Ill.
Walker, J. E., Hornell, N. Y.
Walsh, Frederick W., Rockville, Conn.
Ware, Martin W., New York.
Webster, J. P., Chicago.
West, Edward G., Boston, Mass.
Wilbur, H. G., Fall River, Mass.
Wilkinson, Oscar, Washington, D. C.
Williams Joseph, Boston.
Wheeler, H. H., Indianapolis, Ind.
White, H. Warren, Boston.
Woodruff, L., Columbus, Ohio.
Worthington, H. C., Oak Park, Ill.
Wylie, Ella R., Boston.
Young, Edgar W., Everett, Mass.

Marriages

ERNEST E. DAVIS, M.D., to Miss Frances Ross, both of Avon, Ill., June 2.

JOHN A. GIBSON, M.D., Leesburg, Va., to Miss Frances Louise Perry, June 2.

MAX R. DINKELSPIEL, M.D., to Miss Ida Kline, both of Philadelphia, June 6.

WILLIAM H. DALEY, M.D., to Miss Rae M. O'Dowd, both of Chicago, June 12.

CLYDE C. WINTER, M.D., Presho, S. D., to Miss Lena Sutter of St. Louis, June 5.

DANIEL G. MONAGHAN, M.D., to Miss Mary Sullivan, both of Denver, Colo., June 13.

FRANK POTTS, M.D., Toluca, Ill., to Miss Mabelle Thompson of Lacon, Ill., June 14.

O. B. HAWLEY, M.D., to Miss Elizabeth Burdum, both of Corning, Iowa, May 29.

J. D. MOTHERAL, M.D., Cotulla, Texas, to Miss Julia Howard, Devine, Texas, June 12.

J. DE VOINE GUYOT, M.D., to Miss Flora May Harrison, both of Philadelphia, May 29.

RODNEY E. TROUTMAN, M.D., to Miss A. Twells, both of Logansport, Ind., June 2.

STEWART R. ROBERTS, M.D., Oxford, Ga., to Miss Louise Welch of Atlanta, June 6.

HARRY SILSBY FINNEY, M.D., Rawlins, Wyo., to Miss Mollie Beeler of Omaha, June 9.

JOSEPH D. CAIN, M.D., Indianapolis, to Miss Mary Fallon Rainey of Chicago, June 5.

HARRY CORNWELL HAYS, M.D., to Miss Mary Mohr, both of Kansas City, Mo., June 14.

N. A. ARCHER, M.D., Jellico, Tenn., to Miss Rubie Gatliff of Williamsburg, Ky., recently.

JOHN W. MCDONALD, M.D., Dubuque, Iowa, to Miss Blanche O'Brien of St. Louis, June 5.

ALFRED CRAMER, M.D., to Miss Anna Browning Doughten, both of Camden, N. J., June 9.

JAMES MAC EVITT, M.D., Brooklyn, N. Y., to Miss Elizabeth Mary Phelan, Chicago, June 13.

FRANK ALBERT FORD, M.D., Altoona, Pa., to Miss Rachel Boyd Dunn of Philadelphia, June 20.

THOMAS G. HAWLEY, M.D., to Miss Marie Christiana Gerhard, both of St. Louis, May 3.

S. S. KOSER, M.D., Sunbury, Pa., to CYNTHIA E. WILLIAMS, M.D., of Buffalo, N. Y., June 1.

JOHN W. ELDER, M.D., Albuquerque, N. M., to Miss Minnie Lay, at Richmond, Va., June 14.

FRANK R. HANSEN, M.D., Lakefield, Minn., to Miss Helen Chapin of Cresco, Iowa, June 7.

WILLIAM H. WITHERSTINE, M.D., Rochester, Minn., to Miss Ida Dahlem of Joliet, Ill., June 1.

E. O. DENNIS, M.D., Zanesville, Ohio, to Miss Elizabeth Eakin of Columbus, Ohio, June 6.

CURTIS M. WRAY, M.D., Monitor, Ind., to Miss Gertrude Skinner of Lafayette, Ind., June 5.

WILLIAM EMORY HYSKELL, M.D., Wilcox, Pa., to Miss Mary Hays Bell of Altoona, Pa., June 6.

HENRY DURST JONES, M.D., Schleswig, Iowa, to Miss Anna Mae Hall of Denison, Iowa, June 3.

EUGENE HARRIS, M.D., Seattle, Wash., to Miss Marybell Hamill of Massillon, Ohio, May 24.

C. R. FISHEL, M.D., Dellroy, Ohio, to Miss Emma Maude Hudson of Delaware, Ohio, June 7.

JOSEPHINE S. LINDSTROM, M.D., and Robert W. Stickelberger, both of Oberon, N. D., June 13.

GUY DAVID ENGLE, M.D., Wilkinsburg, Pa., to Miss Miriam Emily Young of Pittsburg, June 6.

HENRY HOUGHTON, M.D., New York City, to Miss Caroline Carmack of Columbus, Ohio, June 9.

HUGH C. AREY, M.D., Merriam Park, St. Paul, Minn., to Miss Mabel Lane of Minneapolis, June 20.

FRANK J. DUFFEY, M.D., Brooklyn, N. Y., to Miss Joan Reeves, at Washington, D. C., June 6.

ROBERT W. MILLER, M.D., Martinsburg, Va., to Miss Grace McCraney, Washington, D. C., June 1.

E. G. WILSON, M.D., Moscow, Mich., to Miss Mary Kries of Peoria, Ill., at Somerset, Mich., May 27.

JOHN D. FRAZER, M.D., Singerglen, Va., to Miss Sarah Penn Farish of Orange County, Va., June 6.

JAY C. DECKER, M.D., to Miss Nina E. Cheney, both of Belleville, Kan., at Denver, Colo., June 5.

LOUIS B. HENKEL, JR., M.D., Annapolis, Md., to Miss Etta Hamlin Rayle, at La Plata, Md., June 6.

GEORGE WILBERT COTTIS, M.D., Batavia, N. Y., to ELIZA A. FANCHER, M.D., of Albion, N. Y., June 1.

MATHEW THOMAS ROTHWELL, M.D., Telluride, Colo., to Miss Rowena Gaynor Wittle of Denver, June 6.

THOMAS E. PETERS, M.D., Flora, Ind., to Miss Ella Withers of Decatur, Ind., at Anderson, Ind., May 31.

CHARLES W. FLEENOR, M.D., Holston Valley, Tenn., to Miss Josephine St. John of Bristol, Va., June 20.

ARTHUR MYLES WARD, M.D., Boston, Mass., to Miss Diadama Irene Sharp of Houlton, Maine, June 6.

THEODORE H. HOCH, M.D., Michigan City, Ind., to Miss Lenora MacNiven of Worcester, Mass., June 18.

WILLIAM E. MCCLANAHAN, M.D., to Miss Susie Cecilia McGuinness, both of Baltimore, Md., Nov. 26, 1905.

WILLIAM R. MURRAY, M.D., Minneapolis, Minn., to Miss Elizabeth Chapin Eaton of Nyack, N. Y., June 9.

HORACE M. FRITZ, M.D., Quincy, Pa., to Miss Irene A. Relly of Quincy Township, Pa., at Waynesboro, June 2.

THOMAS BENTON FISHER, M.D., Dallas, Texas, to Miss Susie Gahagan of Waxahachie, Texas, at Dallas, June 6.

CLARENCE DUNCAN CUDWORTH, M.D., Millers Falls, Mass., to Miss Florence Beckner of Johnson City, Tenn., June 5.

EGBERT WILSON SPROULE, M.D., Peterson, Iowa, to Miss Gertrude Gallaher of Toronto, Ont., at Spencer, Iowa, June 6.

HAL CLEMENT WYMAN, M.D., to Miss Lulu Anita Weeks, both of Detroit, Mich., at Mount Vernon, N. Y., June 12.

Deaths

George Augustus Ketchum, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1846; a heroic worker during the yellow-fever epidemic of 1847-48; one of the organizers of the Medical College of Alabama, and dean and professor of theory and practice of medicine in that institution; one of the four delegates sent to the convention at Montgomery in 1861, which passed the ordinance of secession; surgeon of the Fifth Alabama Infantry, C. S. A., during the Civil War; a member of the general council of Mobile; a prominent figure in the organization of the Alabama Medical Association; for 35 years president of the Mobile Board of Health, died at his home in Mobile, May 29, after an illness of several weeks, aged 81.

William Martin Findlay, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1867; a member of the American Medical Association, Medical Society of the State of Pennsylvania, Blair County Medical Society, and Altoona Academy of Medicine; one of the most prominent physicians of western Pennsylvania; elected a delegate to the American Medical Association at its Boston meeting; a member of the medical staff of the Altoona Hospital, and for several years representative from Blair County of the State Board of Health; a veteran of the Civil War; twice a member of the local school board, died suddenly at his home in Altoona, from cerebral hemorrhage, June 2, aged 63.

Mary Putnam Jacobi, M.D. Ecole de Médecine, Paris, France, 1871; the first woman to be admitted to the Paris School of Medicine; one of the most distinguished woman physicians of her time; a notable writer on educational and kindred subjects; the first woman to be admitted to membership in the New York Academy of Medicine; some-time professor of materia medica in the Woman's Medical College of New York and in the Post-Graduate Medical School; for 12 years dispensary physician at Mount Sinai Hospital, and visiting physician at St. Mark's Hospital, died at her home in New York City, June 10, after an illness of more than four years, aged 63.

Emerson M. Sutton, M.D. Bellevue Hospital Medical College, New York, 1891; a member of the American Medical Association, Western Surgical and Gynecological Association, Illinois State, Peoria County, Peoria City and Military Tract medical societies; staff surgeon for the Cottage and Deaconess Hospital, Peoria, and local surgeon for the Iowa Central and Chicago & Northwestern Railways; one of the most prominent surgeons and gynecologists of Central Illinois, fearing insanity, committed suicide, June 19, by shooting himself through the head.

Robert Shoemaker Ives, M.D. Medical Institution of Yale College, New Haven, Conn., 1866; a member of the Connecticut Medical Society, New Haven County Medical Society, and New Haven Medical Society; for many years a member of the American Medical Association; consulting physician to the New Haven Hospital; a prominent practitioner of New Haven, died at his home in New Haven, June 9, from appendicitis, a few hours after operation, aged 64.

Samuel H. Lowry, M.D. Bellevue Hospital Medical College, New York City, 1873; a member of the board of censors of the Madison County (Ala.) Medical Society; formerly vice-president and censor of the Medical Society of the State of

Alabama, and for many years health officer of Huntsville, died at his home in that city, June 7, from paralysis, after a long illness, aged 56.

John Davis Hawkes, M.D. Medico-Chirurgical College of Philadelphia, 1904, of Philadelphia; vice-president of the Pancoast Anatomical Society, and member of Pierce Neurological Society, Mann Orthopedic Society and Fox Ophthalmological Society, died at Saranac Lake, N. Y., April 9, after an illness of several months, from tuberculosis, aged 27.

Donald McLean Barstow, M.D. College of Physicians and Surgeons in the City of New York, 1892; a member of the New York State Medical Association; assistant surgeon of the New Amsterdam Eye and Ear Hospital, and a prominent eye and ear specialist of New York City, died suddenly in Portland, Maine, June 9, aged 38.

Jason B. Roach, M.D., for 30 years a practitioner of Augusta, Ohio; a member of the Ohio legislature in 1858; who served three years with the One Hundred and Twenty-sixth Ohio Volunteer Infantry during the Civil War, died at his home in Alliance, Ohio, March 18, from uremia, after an illness of a year, aged 79.

George Hunt Hibler, M.D. College of Physicians and Surgeons in the City of New York, 1904; formerly house surgeon in the Harlem Hospital, and also in the Katonah (N. Y.) Sanatorium, died at the home of his mother in Morristown, N. J., March 31, from tuberculosis, after an illness of a year and a half, aged 27.

Charles Victor Starke, University of Upsala, Sweden, 1889; a member of the American Medical Association; for two years a resident of the Argentine Republic, and since 1892 a practitioner of Rockford, Ill., died at his home in that city, June 10, from nephritis, after a protracted illness, aged 53.

Ephraim McDowell Coffey, M.D. Transylvania University, Medical Department, Lexington, Ky., 1852; division surgeon in the Confederate service during the Civil War; formerly sheriff and treasurer of Platte County, Mo., died at his home in Platte City, June 6, after an illness of two weeks, aged 77.

Henry C. Kasselman, M.D. Universityof Michigan Homeopathic Medical College, Ann Arbor, 1883, for many years a member of the faculty of the Southwestern Homeopathic College, Louisville, Ky., died at his home in Midway, Ky., May 25, from tuberculosis, after a long illness, aged 45.

Morgan M. Lowe, M.D. Tulane University of Louisiana, Medical Department, New Orleans, 1885; a member of the parish and state medical societies; a well-known physician of Algiers, La., died at his home in that city, June 4, from appendicitis, after an illness of one week, aged 50.

John Adams Wakeman, M.D. Worthington Medical College, Medical Department of Ohio University, Worthington, Ohio, 1838; Hahnemann Medical College, Philadelphia, 1853; formerly of Centralia, Ill., died at the home of his daughter in Minneapolis, Minn., June 8, aged 91.

Emil H. Klueber, M.D. Medical Department of the University of Iowa, Keokuk, 1863; during the Civil War surgeon of an Illinois regiment; for about 20 years a practitioner of Topolobampo, Mexico, was murdered while attending an Indian patient, Dec. 23, 1905.

Julian Carroll Kendrick, M.D. University of Louisville, Medical Department, 1877; of Downey, Cal.; for two years in the Confederate service during the Civil War; coast surgeon general of the United Confederate Veterans, died at Los Angeles, Cal., May 31, aged 59.

Harry Lee Hinds, M.D. Medical College of Alabama, Mobile, 1904, a practitioner of Jackson County, Ala., died at the City Hospital, Huntsville, April 21, after an operation for tuberculosis of the hip, from which he had suffered for a considerable time, aged 24.

Alexander B. Newton, M.D. Rush Medical College, Chicago, 1867; a member of the La Crosse County Medical Society; hospital steward throughout the Civil War, died at his home at Bangor, Wis., June 6, after an illness of more than a year, aged 63.

James G. La Roe, M.D. Bellevue Hospital Medical College, New York City, 1873, a member of the board of health of Greenpoint, Brooklyn, died at his home in that city, June 2, from cerebral hemorrhage, after an illness of four days, aged 55.

Charles H. Rockwood, M.D. Cleveland Medical College, Medical Department of Western Reserve College, Cleveland, 1869, formerly a practitioner of Amherst, Ohio, died at the home of his daughter in Lorain, Ohio, June 2, from cerebral hemorrhage, aged 65.

Samuel P. Boardman, M.D. University of Wooster, Medical Department, Cleveland, Ohio, 1897; a prominent practitioner of Springfield, Ill., while a sufferer from melancholia, committed suicide by drowning in the Springfield reservoir, June 1.

Frederick W. Deichman, M.D. Eclectic Medical College of the City of New York, 1873; a surgeon during the Franco-Prussian War; a member of the Bristol Medical Association, died at his home in Bristol, Conn., June 6, from nephritis, aged 57.

Arthur Thomas Cheatham, M.D. Jefferson Medical College, Philadelphia, who retired from practice 25 years ago on account of ill-health, died in his home at Atlanta, Ga., March 25, from heart disease, after an illness of 24 hours, aged 74.

James M. McAdams, M.D. Miami Medical College, Cincinnati, 1871, a Confederate veteran, died May 30, at his home in Nevada, Mo., from pneumonia, following an accident in which he suffered a fracture of several ribs, aged 74.

William E. Phillips, M.D. Eclectic Medical Institute, Cincinnati, 1854; Jefferson Medical College, Philadelphia, 1857; a surgeon during the Civil War, died at his home in Wyoming, Ky., May 30, from appendicitis, aged 76.

George Oscar Jobes, for many years a practitioner of Indiana; state sanitary officer during the Civil War, died at the City Hospital, Indianapolis, from arteriosclerosis, February 16, after an illness of two weeks, aged 83.

John Frederick Scoresby Eastgate, M.D. College of Physicians and Surgeons in the City of New York, 1880, died at his home in Ellenville, N. Y., June 2, from pulmonary edema, after an illness of two weeks, aged 49.

Charles A. Hoff, M.D. Miami Medical College, Cincinnati, 1874, some-time on the staff of the Ohio State Hospital, Dayton, died at his home in St. Louis, June 11, from rheumatism, after an illness of five years, aged 56.

Thomas Watkins, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1868, a Confederate veteran, died at his home in Memphis, Tenn., May 31, after an illness of nearly a year, aged 65.

Edwin T. Jones, M.D. New York University, New York City, 1883, of Queens, Long Island, N. Y., acting chief of staff of the Jamaica Hospital, died suddenly in Utica, N. Y., June 11, from cerebral hemorrhage, aged 56.

Henry Austin Carrington, M.D. Harvard University Medical School, Boston, 1848, a member of the Bristol (Conn.) Medical Association, died at his home in Bristol, June 9, after a long period of invalidism, aged 79.

Frederick R. Hodgson, M.D. Saginaw Valley Medical College, Saginaw, Mich., 1900, of Rives Junction, Mich., died at the City Hospital, Jackson, Mich., June 2, from appendicitis, after a short illness, aged 30.

Joseph Fuller Durant, M.D. Eclectic Medical Institute, Cincinnati, 1854, for several years alderman of Quincy, Ill., died at his home in that city, June 5, from heart disease, after a short illness, aged 74.

Arthur S. Sanders, M.D. Tulane University of Louisiana, Medical Department, New Orleans, 1881, died at his home in Hot Springs, Ark., June 7, from septicemia, due to a carbuncle of the neck, aged 59.

Sebastian Hiriart, M.D. Tulane University of Louisiana, 1896, of Plaquemine, La., died at the New Orleans Sanitarium, March 17, from pleurisy with effusion, after an illness of several months, aged 59.

John H. Schiermann, M.D. Medical Department of Washington University, St. Louis, 1892, for several years a clinical instructor in that institution, died at his home in St. Louis, June 5, aged 41.

Frank Curtis Dolley, M.D. University of Vermont, Burlington, a member of the Maine Medical Association, was found dead in bed in Casa Grande, Ariz., from heart disease, March 16, aged 50.

Howard Phillips, M.D. Long Island College Hospital, Brooklyn, N. Y., 1882, died at his home in Stillwater, N. Y., April 21, from hemorhage of the stomach, after a long illness, aged 54.

Warren H. Thomas, M.D. Hahnemann Medical College and Hospital, Chicago, 1877, of Elkhart, Ind., died suddenly from angina pectoris while making a professional call, June 7, aged 63.

Thaddeus E. Sanger, M.D. Hahnemann Medical College, Philadelphia, 1868, of Littleton, N. H., died in a hospital in Boston, June 6, from heart disease, after an operation, aged 74.

Millard F. Lee, M.D. Bellevue Hospital Medical College, New York City, 1876, of Columbus, Ohio, died at the Shepherd Sanitarium in that city, June 4, from tuberculosis, aged 58.

Joseph Bruner, M.D., one of the oldest practitioners of Mecklenberg County, N. C., died suddenly from heart disease while making a professional call near Matthews, May 2, aged 66.

Murdoch McGregor, M.D. Harvard University Medical School, Boston, 1863, a surgeon in the Army during the Civil War, died at his home in River Port, N. S., March 6, aged 70.

Hobart Richardson, M.D. Dartmouth Medical School, Hanover, N. H., 1868, died at his home in Benton, Maine, May 28, from cerebral hemorrhage, after an illness of one week.

John Quincy Adams French, M.D., a practitioner of Hillsboro, N. H., for more than 50 years, died in Hillsboro Upper Village, April 24, two days after an accident, aged 78.

Elisha Ely, M.D. College of Physicians and Surgeons in the City of New York, 1848, a pioneer practitioner of California, died at the home of his daughter in Redlands, May 8.

George B. Harry, M.D. Hahnemann Medical College, Philadelphia, a surgeon in the Spanish-American War, formerly of Dolington, Pa., died recently in Oklahoma, aged 32.

George W. Draper, M.D. Albany (N. Y.) Medical College, 1858, died at his home in Syracuse, N. Y., June 8, from nephritis, after an illness of more than a year, aged 73.

William H. Hugg, a pioneer practitioner of Portland, Mich., died at his home in that place, April 30, from tumor of the intestines, after an illness of one year, aged 80.

Enos S. Swain, M.D. Kentucky School of Medicine, Louisville, 1860, a surgeon in the federal service during the Civil War, died recently at his home in Smithville, Ky.

George Wigg, M.D. Essex Homeopathic Medical Institute, Colchester, England, 1863, died suddenly at his home in Portland, Ore., May 31, from heart disease, aged 68.

Thomas C. Rhoads, M.D. New York University, New York City, 1865, formerly city physician of Weehawken, N. J., died suddenly in New York City, May 30, aged 62.

Frederick Goodwin, M.D. Vermont Medical College, Rutland, 1889, died at his home in Bayfield, N. B., February 11, from nephritis, after a long illness, aged 45.

Gilbert L. Gifford, M.D. Hahnemann Medical College, Philadelphia, 1863, died suddenly at his home in Hamilton, N. Y., from heart disease, June 11, aged 64.

John L. Simpson, M.D. Atlanta (Ga.) Medical College, 1889, died suddenly from heart disease at his home in Houston Heights, Texas, May 19, aged 52.

Paris Shoaff, M.D. Western Pennsylvania Medical College, Pittsburg, 1892, died from tuberculosis at his home in New Castle, Pa., June 6, aged 37.

Moses Hubbard, M.D. Missouri Medical College, St. Louis, 1856, founder of Alla College, Roseland, Texas, died at his home in that city, May 26.

Adam Miesse, M.D. Eclectic Medical Institute, Cincinnati, 1868, a veteran of the Civil War, died at his home in Noblesville, Ind., May 31, aged 65.

King R. Cutler, M.D. Eclectic Medical Institute, Cincinnati, 1892, died at his home in Houston, Texas, May 31, from heart disease, aged 55.

Hall Curtis, M.D. Harvard University Medical School, Boston, 1857, of Boston, died recently at his country place in Beverly Farms, Mass.

Joseph John William Roberts Boyer, M.D., died at his home in Barrie, Ont., February 12, from pneumonia, after an illness of 10 days, aged 51.

Seymour Putnam, M.D. Bellevue Hospital Medical College, New York City, 1876, formerly of Joplin, Mo., died in Kansas City, Mo., May 26.

A. C. Hardin, M.D. Physio-Medical College, Cincinnati, Ohio, died at his home in Elkton, Ky., Dec. 20, 1905, from senile debility, aged 76.

James Miller, Jr., passed assistant surgeon, United States Navy, died in the Cable Station, Midway Island, from appendicitis, May 13.

Harry Haxall, M.D. College of Physicians and Surgeons, Baltimore, 1882, died suddenly at his home in Providence Forge, Va., June 8.

Robert Liston, M.D. Eclectic Medical College of the City of New York, 1875, died at his home in Albany, N. Y., June 1, aged 72.

William T. Brown, M.D. Jefferson Medical College, Philadelphia, 1859, died recently at his home in Altus, Ark., aged 78.

Alexander R. Shaw, M.D. Hahnemann Medical College, Philadelphia, 1857, died at his home in Philadelphia, June 11.

James W. Dupree, M.D. New Orleans School of Medicine, 1870, of Baton Rouge, La., died in Cincinnati, May 25.

I. A. Ketron, M.D. Atlanta (Ga.) Medical College, 1876, died at his home in Clarkesville, Ga., April 12, aged 58.

Jacob Hoke, M.D. Chicago Medical College, 1869, died at his home in Cordova, Ill., May 28, aged 90.

J. T. B. Ford, M.D. (Examination, Alabama), died at his home in Pollard, Ala., May 26, aged 73.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

SOMNOFORM.

DOWAGIAC, Mich., June 5, 1906.

To the Editor:—Where can I get information on the effects of Somnoform, a new dental anesthetic? I wish to find whether or not there have been any fatal or bad effects from its use as an anesthetic. I read an article some time ago in which it was stated that there have been several fatalities from its use. I have lost the article, but think it was in THE JOURNAL. Please send me the required information, or tell where I can obtain it.

W. E. PARKER, M.D.

ANSWER.—Somnoform, prepared by C. De Trey & Co., Berlin, Germany, is said to be a mixture of ethyl chlorid 60 parts, methyl chlorid 35 parts and ethyl bromid 5 parts. The relative value of ethyl chlorid and methyl chlorid as compared with ether and chloroform is still an open question, as also is their relative safety of administration. In a general way they have been found to stand, both in effect and safety, between nitrous oxid and ether. W. J. McCardle (*British Medical Journal*, March 17, 1906, p. 616), cites a number of fatalities from the use of ethyl chlorid and also states that several deaths have occurred from somnoform.

DENATURED ALCOHOL.

LOGANSPORT, IND., June 11, 1906.

To the Editor:—Will you please tell me what denatured alcohol is, or what process it undergoes or what adulterations are made to produce denatured alcohol as referred to in the recent bill passed by Congress?

J. Z. POWELL.

ANSWER.—The bill recently enacted authorizing the withdrawal from bond of tax-free denaturized alcohol for certain purposes, specifies that alcohol must be mixed "with denaturing material suitable to the use for which the alcohol is withdrawn, but which destroys its character as a beverage and renders it unfit for liquid medicinal purposes." It further directs that the nature and quantity of denaturing material shall be prescribed by the commissioners of Internal Revenue.

In England, the denaturated alcohol sold at retail contains either 10 per cent. of crude wood alcohol, or else 0.275 per cent. petroleum oil. Under certain conditions alcohol used for manufacturing may be denaturized by addition of other substances.

In Germany, the article offered for miscellaneous sale is denaturized by addition of pyridin and crude wood alcohol, but other additions are authorized for particular lines of manufacture.

Miscellany

Lack of Lime the Basis for Tuberculosis.—P. Ferrier in France and G. Fisac in Spain have recently called attention anew to the importance of lime in the prevention and cure of tuberculosis. The former preaches that the lack of a sufficient proportion of lime in the body is the reason that the tubercle bacilli gain an easy foothold and flourish. Fisac, on the other hand, has been proclaiming the immunity to tuberculosis of persons whose occupation involves the handling of lime and inhalation of lime dust. Ferrier declares that the condition of the teeth is the criterion as to the strength of the resistance that can be offered the bacilli. Tuberculous subjects have poor teeth, as a rule, friable and subject to acute caries. Treatment and prophylaxis should aim to make and to keep the teeth strong and sound, and the tuberculous process will then be found conquered. No acid food, or food inducing acid fermentation, should be allowed, and both food and drinks

should aim to "recalcify the organism." The beverage should be alkaline mineral waters rich in calcium bicarbonates. A glass should be taken half an hour before each meal. This cleanses the stomach and prepares it for the food. During or after each meal he orders a cachet containing 0.4 gm. each of calcium carbonate and tribasic calcium phosphate with 0.35 gm. of sodium chlorid. If the secretion of hydrochloric acid is deficient he prescribes further a teaspoonful of a solution of 2.5 gm. calcium chlorid in 100 gm. distilled water. He is convinced that whenever there is acute dental caries there is phosphaturia, but the latter may be transient and ignored, while the condition of the teeth is a constant and faithful index of the lime values of the organism. The benefit ascribed to country air and to residence at the seashore may possibly be due to the change to water and soil containing more lime. Ferrier's latest communication appeared in the *Bull. Soc. Med. des Hôp.*, xxiii, No. 12, 1906. Sergent's experience during the last eighteen months apparently confirms his assumptions. Rénon also reported a remarkable absence of tuberculosis in a certain town since lime kilns have become numerous there. Some persons who were already tuberculous are now in robust health after working in the kilns.

State Boards of Registration

COMING EXAMINATIONS.

MARYLAND Board of Medical Examiners, Baltimore, June 20-23. Secretary, J. McP. Scott, Hagerstown.

ARIZONA Board of Medical Examiners, Phoenix, July 2-3. Secretary, Ancil Martin, Phoenix.

UTAH State Board of Medical Examiners, Salt Lake City, July 2-3. Secretary, R. W. Fisher, Salt Lake City.

NORTH DAKOTA State Medical Examining Board, Grand Forks, July, 3-5. Secretary, H. M. Wheeler, Grand Forks.

WASHINGTON State Medical Examining Board, Tacoma, July, 3-5. Secretary, C. W. Sharples, Seattle.

RHODE ISLAND State Board of Health, State House, Providence, July, 5-6. Secretary, G. T. Swarts, Providence.

NEW HAMPSHIRE State Medical Board, Concord, July 6-7. Regent, H. C. Morrison, Concord.

ARKANSAS State Medical Examining Board, Little Rock, July 10. Secretary, J. P. Runyan, Little Rock.

BOSTON State Board of Registration in Medicine, State House, Boston, July 10-11. Secretary, Edwin B. Harvey, Boston.

CONNECTICUT Medical Examining Board, City Hall, New Haven. July 10-11. Secretary, Charles A. Tuttle, New Haven.

MAINE Board of Registration of Medicine, State House, Augusta, July 10-11. Secretary, W. J. Maybury, Saco.

OREGON State Board of Medical Examiners, Portland, July 10-12. Secretary, Byron E. Miller, Portland.

VERMONT State Board of Medical Registration, Burlington, July 10-12. Secretary, W. Scott Nay, Underhill.

WEST VIRGINIA State Board of Health, Charleston, July 10-12. Secretary, H. A. Barlow, Point Pleasant.

WISCONSIN State Board of Medical Examiners, Madison (Park Hotel), July 10-12. Secretary, J. V. Stevens, Jefferson.

SOUTH DAKOTA Board of Medical Examiners, Watertown, July 11-12. Secretary, H. E. McNutt, Aberdeen.

DISTRICT OF COLUMBIA Board of Medical Supervisors, Washington, D. C., July 12. Secretary, W. C. Woodward, Washington, D. C.

Georgia April Report.—Dr. E. R. Anthony, secretary of the Regular Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, April 5-6, 1906. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 90, of whom 86 passed and 4 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
College of P. and S., Atlanta, (1906), the grades of 77, 79, and 80 were reached by one each, 81 and 82 by three each, 83 by five, 84 by two, 85 by three, 86 by ten, 87 by five, 88 by three, 89 by four, 91 by one, 92 by two, 94, 95 and 97 by one each.		
Atlanta School of Medicine (1906), the grade of 80 was reached by two, 81 by one, 82 by two, 83 and 84 by three each, 88 by one.		
Meharry Med. Coll.	(1905) 89; (1906) 78, 79, 82, 84, 87,	88
University of the South	(1905) 77, 79; (1906)	81
University of Nashville	(1906)	85
Leonard Med. Coll.	(1906) 79, 83, 84, 87,	87
Tennessee Med. Coll.	(1905)	88
Chattanooga Med. Coll.	(1899) 85; (1902) 77; (1906)	75
Vanderbilt University	(1893)	80
College of P. and S., New York	(1888)	81
College of P. & S., Baltimore	(1904)	79
Baltimore Med. Coll.	(1897)	86
Maryland Med. Coll.	(1904)	76
University of Tennessee	(1901)	80
Kentucky School of Medicine	(1880)	75

FAILED.

College of P. & S., Atlanta	(1906)	67, 74
Chattanooga Med. Coll.	(1901)	66
University of Georgia	(1905)	73

Kentucky May Report.—Dr. J. N. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, May 15, 1906. The number of subjects examined in was 14; total number of questions asked, 110; percentage required to pass, average 70, not less than 60 in any one branch. The total number of candidates examined was 35, of whom 23 passed, including 2 osteopaths, and 12 failed, including 4 osteopaths. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
University of Louisville	(1906) 70, 72, 74, 74, 76,	79, 85
Eclectic Medical Institute (Cincinnati)	(1906)	84, 84
Medical College of Ohio	(1905)	78, 83
Vanderbilt University	(1905)	75, 83
Louisville Med. Coll.	(1905)	79
Medico-Chirurgical College, Philadelphia	(1905)	78
Kentucky University	(1905)	78
University of Nashville	(1904)	76
College of P. and S., St. Louis	(1906)	76
Meharry Med. Coll.	(1906)	75, 75
New York Homeo. Med. Coll.	(1901)	74

FAILED.

University of Tennessee	(1906)	64
Eclectic Medical Institute, Cincinnati	(1906)	69
University of Nashville	(1901)	64
Barnes Med. Coll.	(1906)	68
Kentucky University	(1903)	61
University of Louisville	(1906)	66,*74
Kentucky School of Medicine	(1898)	57

* Made below 60 on two subjects.

The following questions were asked:

SURGERY.

1. Differentiate between appendicitis, gallstone colic and renal colic. 2. When would it be necessary to catheterize a male and how would you do it? What difficulties and dangers would you expect to encounter? 3. Discuss the complications of gonorrhea in the female, and tell when you would consider a male cured of this disease. 4. How would you reduce (a) a dislocation of the humerus downward at the shoulder, and (b) a dislocation of the humerus at the hip joint? 5. Differentiate between pleurisy with effusion and empyema. 6. Differentiate between a sprained ankle and Pott's fracture, and give the pathologic anatomy of the latter. 7. Define (a) sepsis, (b) antisepsis, (c) asepsis, (d) volvulus and (e) endothelium. 8. On what symptoms would you establish a diagnosis of syphilis, and describe its secondary manifestations. 9. Describe in detail an inguinal hernia; (b) under what circumstances would you call it strangulated; and (c) describe what steps you would take before deciding that an operation was necessary for strangulated hernia.

MENTAL AND NERVOUS DISEASES.

1. Define (a) mania, (b) delusion, (c) aura, (d) cretinism and (e) idiocy. 2. Describe and give the pathology of anterior poliomyelitis. 3. Describe a section of the spinal cord at one of the following levels—the seventh cervical vertebra, the fifth dorsal or the second lumbar. 4. Tell what you know of the reflex nervous system. 5. Under what conditions would you be willing to state that a person was incapable of writing a will?

CHEMISTRY.

1. What inorganic salts enter into the formation of human bone, and give a method for detecting one base and one acid among them. 2. Define (a) specific gravity, (b) valence. 3. Define glycogen. Where does it occur in the body? 4. Give in detail a test for arsenic in the stomach at a postmortem examination. 5. Define (a) crystallization, (b) efflorescence, (c) organic chemistry, (d) acid and (e) base. 6. Describe in detail two methods for testing urine for albumin. 7. Describe in detail a quantitative test for urea. 8. What is the chemical composition of blood? 9. Name ten elements. 10. Give the chemical constituents of water, air and bile.

ANATOMY.

1. Describe the fourth ventricle. 2. Describe the bladder and give its relations. 3. Describe two of the following: The superior maxillary bone, the os innominatum, the dorsal portion of the vertebral column. 4. Describe the brachial plexus. 5. Describe one of the following muscles: Omohyoid, deltoid, quadriceps extensor. 6. Describe (a) the femoral vein, (b) the trachea. 7. Give the gross anatomy of the pancreas. 8. Describe the transverse colon. 9. Give the histology of the kidney. 10. Describe (a) the circle of Willis, and (b) tell what structures pass through the foramen of Vesalius.

OBSTETRICS.

1. Describe the mechanics of a normal labor. 2. How would you diagnose and manage a breach presentation? 3. Describe the development of the ovum after impregnation and tell what structures develop from each layer of the blastoderm. 4. Tell how to diagnose and how to repair a recent laceration of the perineum. In what proportion of cases are they found? 5. Give the cause, pathology, and symptomatology of milk leg or phlegmasia alba dolens. 6. How would you diagnose placenta prævia, and how would you manage a case before, during and after labor? 7. Describe exactly the application of forceps in an occiput posterior case in the superior strait. 8. Under what circumstances would you be called on to do a rapid manual dilatation of the os uteri at full term and how would you do it? 9. A multipara has been in labor several hours, the membranes have ruptured and the right hand and a pulsating cord are in the vagina. Tell exactly what you would do. 10. (a) What is a postpartum hemorrhage? (b) How would you prevent it; and (c) how would you manage an extreme case?

OTOLOGY.

1. Give the causes of deafness and state what may be done to relieve it. 2. Under what circumstances would it be necessary to have an operation done in mastoiditis? 3. How would you diagnosticate acute otitis media and what would you do for it? 4. Describe (a) the labyrinth and (b) the Eustachian tube. 5. How would you remove a bean from the external auditory canal.

ETIOLOGY AND PHYSICAL DIAGNOSIS.

1. Describe the normal heart sounds and give the points of greatest intensity for each of the heart murmurs. 2. How would you differentiate between acute gastritis, ulcer of the stomach, hypertrophy of the stomach and hyperacidity? 3. Give objective and subjective symptoms of pulmonary emphysema. 4. Define bronchial breathing. What is its cause and in what diseases may it be heard? 5. What is the cause of puerperal sepsis and how would you prevent it?

OPHTHALMOLOGY.

1. Describe glaucoma. 2. Describe iritis. 3. Define (a) hypopyon, (b) ophthalmoscope and (c) crystalline lens. 4. Describe ophthalmia neonatorum. 5. Describe trachoma, and tell how you would prevent its spread.

PHYSIOLOGY.

1. Describe the sympathetic (nerve) system. 2. What are the changes in bread during its digestion, and where do each occur? 3. Give the origin, function, and the relative number of the different kinds of blood corpuscles in the healthy system. 4. Define (a) metabolism, (b) secretion, (c) respiration, (d) peristalsis, and (e) coagulation. 5. Describe minute and gross anatomy of the salivary glands and give their functions. 6. Describe the circulation of the blood. 7. How many kinds of muscular tissues are found in the body, describe each. 8. What are the functions of the vagus nerve. 9. Give the physiology of vision. 10. Give the physical properties and chemic composition of normal urine, and name the most important excrementitious products therein.

HYGIENE.

1. How would you prevent the spread of smallpox? 2. How would you disinfect a six-room cottage, each room 14x16 feet and 10 feet high, in which you had treated a case of scarlet fever? Give all steps in detail. 3. If you were treating a case of yellow fever how would you prevent its spread? 4. What advice would you give a patient with acute syphilis in order that he might not infect others? 5. When should water be condemned for drinking purposes?

PATHOLOGY.

1. Give the pathology of tabes dorsalis. 2. State the condition of the blood in leukemia. 3. Give the pathology of rachitis. 4. Differentiate between a chancre and a chancroid. 5. Differentiate between sarcomata and carcinomata, and describe the microscopic appearance of two kinds of sarcomata. 7. Describe the appearance of the blood in malaria. 8. Give the pathology of the different stages of acute lobar pneumonia, giving the exact microscopic appearance of a section of the lung in each stage. 9. Give the pathology of glioma. 10. Describe the pathologic changes which occur in the spinal cord in amyotropic lateral sclerosis.

MEDICAL JURISPRUDENCE.

1. How would you distinguish human blood stains on clothing? 2. What is malpractice and when is a doctor liable for damages for malpractice? 3. By what physical signs would you establish the fact that rape had been committed. 4. (a) Under what circumstances would a doctor be liable for an overdose of poison in a prescription, and (b) when would the druggist be liable? 5. How would you differentiate between death from acute alcoholism and strychnin poisoning, and describe the postmortem changes in each condition?

GYNECOLOGY.

1. Differentiate between a uterine fibroid and an ovarian cyst. 2. What is a pyosalpinx? 3. Differentiate between pyosalpinx, ectopic gestation and abortion. 4. Give the symptoms, and causes of (a) amenorrhea, (b) dysmenorrhea, (c) metorrhagia, (d) retroversion and (e) endometritis. 5. Describe and give the cause of prolapse of the uterus. 6. Under what circumstances is it justifiable to produce an abortion? 7. Describe senile vaginitis. 8. How would you diagnose a vesico-vaginal fistula, and how would you treat such a case? 9. Define menstruation and describe the menstrual cycle. 10. Give the histology of the ovary.

BACTERIOLOGY.

1. Describe the Klebs-Loeffler bacillus. How would you distinguish it? What is diphtheritic antitoxin? 2. Describe the microorganism that causes gonorrhea and tell how to stain it. 3. Describe the mosquito theory of the spread of yellow fever. 4. What is agglutination? What is its practical value in the diagnosis of typhoid fever? 5. Define (a) flagella, (b) karyokinesis, (c) spore, (d) culture and (e) anaërobic. 6. What is Koch's postulate? 7. Give the bacteriology of chronic phthisis, and describe reversion of type. 8. What is phagocytosis? 9. Give the morphology of the *Staphylococcus pyogenes aureus* and tell in what pathologic conditions it is found. 10. Describe (a) a method of making a plate culture, and (b) a stab culture.

Louisiana May Report.—Dr. F. A. Larue, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, May 3-4, 1906. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 121, of whom 114 passed and 7 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Tulane University (1901) 89.2; (1906) 78.2, 82.2, 82.4, 82.4, 84.2, 84.6, 84.8, 85.2, 85.8, 85.8, 86.0, 86.2, 86.4, 86.8, 86.8, 87.0, 87.0, 87.0, 87.2, 87.4, 87.8, 88.0, 88.2, 88.4, 88.4, 88.6, 88.8, 88.8, 89.0, 89.2, 89.2, 89.2, 89.4, 89.4, 89.6, 89.6, 89.6, 90.0, 90.2, 90.2, 90.2, 90.8, 91.0, 91.0, 91.2, 91.8, 92.0, 92.0, 92.2, 92.4, 92.8, 93.0, 93.0, 93.2, 93.2, 93.4, 94.6, 95.0.		
Memphis Hospital Med. Coll. (1893), 76.6; (1896) 77.0; (1904) 88.0, 83.8, 88.8; (1905) 80.0; (1906) 76.8, 77.4, 79.0, 80.0, 80.4, 81.4, 83.4, 84.4, 84.4, 85.2, 86.0, 86.0, 87.6, 98.8, 90.4.		
University of Pennsylvania	(1869)	76.4
University of Nashville (1903) 76.4; (1905) 83.6; (1906) 84.2, 88.6		
Atlanta School of Medicine	(1906)	79.6, 81.8
College of P. and S., Atlanta	(1906)	79.2, 81.6
University of Maryland	(1895) 87.0; (1905)	82.8
Vanderbilt University	(1904) 82.2; (1906)	94.4
Baylor University	(1905) 82.4; (1906)	84.0
Harvard Medical School	(1899)	81.4
College of P. and S., St. Louis	(1859)	81.2
American Medical Missionary College	(1906)	76.8
Kentucky University	(1904)	81.0
Washington University, St. Louis	(1904)	80.4
College of P. and S., Dallas	(1906)	80.8
University of Ohio	(1895)	87.4
University of Toronto	(1899)	85.0
University of Texas	(1900)	89.2
Flint Med. Coll., (1905) 77.6; (1906) 75.2, 77.6, 79.2, 81.0, 85.4, 86.8.		
Meharry Med. Coll.	(1905) 75.2, 76.2, (1906)	80.2

FAILED.

College of P. and S., Dallas	(1906)	61.0
Kentucky School of Medicine	(1898)	68.2
Baylor University	(1905)	69.2
Flint Med. Coll., (1901) 67.0; (1903) 71; (1905) 65.6; (1906) 71.2		

Mississippi May Report.—Dr. J. F. Hunter, secretary of the Mississippi State Board, reports the written examination held at Jackson, May 8-9, 1906. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 231, of whom 118 passed, including 61 non-graduates, and 113 failed, including 72 non-graduates.

Those who passed were from the following colleges: University of the South, 1899, 1905; Toronto Med. Coll., 1899; Marion-Sims Med. Coll., 1895; Northwestern University Woman's Med. Coll., 1882; Memphis Hospital Med. Coll., 1906 (16), 1905, 1904, 1903 (2), 1899; Chattanooga Med. Coll., 1906; Tulane University, 1905, 1906 (4); University of Virginia, 1904; Louisville Med. Coll., 1906; University of Nashville, 1905 (2), 1906 (6); North Carolina Med. Coll., 1906; Meharry Med. Coll., 1906 (4); Atlanta School of Medicine, 1906 (2); Flint Med. Coll, 1906; Leonard Med. Coll., 1906; University of Tennessee, 1897; Barnes Med. Coll., 1906; Vanderbilt University, 1900; Hospital College of Medicine, Louisville, 1905; University of Alabama, 1906; Mobile Med. Coll., 1904.

Those who failed were from the following colleges: Harvey Med. Coll., 1905; College of Med. and Surg., Chicago, 1904; Memphis Hospital Med. Coll., 1900, 1903, 1905 (2), 1906 (8); Tulane University, 1883, 1904, 1906; Med. Coll. of Virginia, 1904; University of Tennessee, 1901; University of Nashville, 1902, 1906 (3); Meharry Med. Coll., 1906 (6); Chattanooga Med. Coll., 1906; Hospital College of Medicine, Louisville, 1904; Leonard Med. Coll., 1905; Flint Med. Coll., 1902, 1904, 1906 (4); Kentucky University, 1904; Barnes Med. Coll., 1902; College of P. and S., Chicago, 1889.

Reciprocity with Vermont.—Dr. W. Scott Nay, secretary of the Board of Medical Registration of Vermont, sends us the following:

The Board of Medical Registration of Vermont will endorse the certificate of license of any state medical examining and licensing board in accordance with the following section of the Public Acts of 1904:

Section 14.—The board shall issue licenses without examination to reputable physicians and surgeons who shall personally appear and present a copy of certificate of registration, or license, which has been issued to said applicant in another state in the union, where the requirements for registration shall be deemed by said board to be equivalent to those of this state, provided such state shall accord a like privilege to holders of a license granted under the laws of this state.

Each applicant for such license shall pay to the board the sum of ten dollars.

The standard of requirements of the Vermont board is as follows:

1. Academic.—A high school diploma after four years of study, or its equivalent, that will qualify for entrance without examination to any of the New England colleges.

2. Medical.—Four courses of lectures of 900 hours each, in four different calendar years prior to graduation from a medical college approved by this board.

Practitioners graduated prior to 1901 are exempt from this requirement.

3. Moral.—Applicants shall present qualifications as to moral character and professional standing from two reputable physicians in the county in which he resides, and from the city or town clerk of his place of residence.

4. Examining.—The examination in writing shall embrace 12 subjects of 90 questions, viz.: Anatomy, bacteriology, practice of medicine and pathology, surgery, legal medicine, obstetrics, gynecology, physiology, hygiene, chemistry, materia medica and therapeutics. The general average must be at least 75 per cent. in order to obtain a license.

West Virginia April Report.—Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports the written examination held at Parkersburg, April 10-12, 1906. The number of subjects examined in was 9; total number of questions asked, 180; percentage required to pass, 80. The total number of candidates examined was 44, of whom 12 passed and 32 failed, including 11 non-graduates. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Ohio Medical University	(1902) 83; (1905)	88
University of Pennsylvania	(1905)	91
University of Virginia	(1900) 92; (1905)	90
Maryland Med. Coll.	(1905)	80
University College of Medicine	(1905)	88, 94
Metropolitan Med. Coll.†	(1899)	83
Harvard University	(1904)	90
University of Maryland	(1904)	87
College of P. & S., New York	(1900)	93
FAILED.		
Kentucky School of Medicine	(1905)	62, 62
Maryland Med. Coll.*	(1903) 57; (1905)	84
Eclectic Medical Institute	(1906)	76, 76
Western Reserve University	(1876)	58
University College of Medicine	(1897) 84;* (1906)	78
Kentucky University	(1904) 71; (1905)	78
Fulte Med. Coll.*	(1906)	83
University of the South	(1904)	72
Louisville Med. Coll.	(1905)	74, 74
Barnes Med. College*	(1905) 82; (1906)	82
University of Louisville*	(1905)	81
Baltimore University	(1905)	77, 77
Baltimore Medical College*	(1905)	80

Non-graduates: The grade of 64 was reached by two, 70, 73 and 76 by one each, 70 by four and 70 and 80* by one each.

* Below 65 in one or more branches.

† This college is not recognized by Illinois State Board of Health.

Society Proceedings

COMING MEETINGS.

State Medical Society of Wisconsin, Milwaukee, June 27-29.
American Ophthalmological Society, New York City, June 28-29.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

Second Annual Meeting, held at Washington, D. C., May 16-18, 1906.

(*Concluded from page 1721.*)

Tuberculosis Among the Indians.

COMMISSIONER F. E. LEUPP, Washington, stated that from data collected by 91 field physicians and representing half the Indian population of the United States, there were included nearly 3,000 cases of tuberculosis, one-third of which were of the pulmonary type. He is distributing pamphlets on the subject and has succeeded in gaining the interest of Congress in the project of establishing in the west a sanitarium for tuberculous Indians.

DR. JAMES R. WALKER, Pine Ridge, S. D., said that in that agency in 1896 there were 4,973 Ogalallas, among whom were 741 cases of tuberculosis. The Indians were then impressed with facts concerning the disease, and in five years the number of cases were reduced from 148 to 105 per thousand. After that a physician could not devote his time to the subject and the ratio has now increased to 120 per thousand.

Other papers discussed in the sociologic section were "The Influence of Sanatoria on the Value of Surrounding Property," by W. H. Baldwin; "Effective Methods of Educating the Public," by Paul Kennaday; "Industrial Sickness Relief Associations and Tuberculosis," by Dr. A. C. Klebs, and "Tuberculosis Among the Negroes," by Mr. T. J. Jones, Hampton, Va.

PATHOLOGICAL AND BACTERIOLOGICAL SECTION.

Papers on "Tuberculous Meningitis," "Tuberculosis of the Liver," and "The Kidneys in Tuberculosis," were read respectively by Drs. D. J. McCarthy, Josephus Ullom and Joseph Walsh of Philadelphia.

Clinical and Pathological Comparison of Cavities.

DR. H. R. M. LANDIS, Philadelphia, reported the results of a study of 50 cases in which cavities were present, 76 cavities in all being found. Of the 76, 58 had been recognized before death. Of the unrecognized list all but three were small, the latter being the size of a lemon. The situation more than the size has to do with the diagnosis. Most of the cavities not diagnosed were filled with thick creamy pus. Ten cases were thought to be instances of cavity formation, but were found not to be; five of them showed consolidation around a bronchus. Of the 58 cavities recognized, 53 gave the sign of whispering pectoriloquy, 49 a tympanitic percussion note, and 33 gurgling rales. Whispering pectoriloquy is not pathognomonic of cavity, being absent in 5 and present in 5 cases where cavity was not present, the lesion being around a bronchus.

DISCUSSION.

DR. W. H. WELCH, Baltimore, said it was interesting to note that cavities are almost peculiar to tuberculosis of the lung, only few appearing elsewhere in the body. The connection with the external air permits removal of the dead material, but the mechanical impact of the inspired air must also be a factor. Mixed infection plays a very important part in the formation of cavities, but is not an absolute necessity. The action of autolytic enzymes has not fully been worked out, but this is also an important feature of the process. During the last few years he has found that the influenza bacillus is a common occupant of pulmonary cavities. These analytical studies of different phases of tuberculosis are of great value and should be encouraged.

DR. ALFRED MEYER, New York, has found an expedient of considerable value in doubtful cases of cavity in the lung. The patient usually lies in the position in which he coughs the least and this may be due to the fact that a filled cavity overflows in certain postures and not in others. To drain the cavity and thus to allow it to give the signs of that condition, the patient should be kept for some hours of even days in the position he usually avoids, and in this way the cavity may be located.

Tuberculosis of the Placenta.

DR. A. S. WARTHIN, Ann Arbor, presented a series of lantern slides to show his findings in three cases of this lesion. One was a case of tuberculosis of the tubes in the mother and of the placenta and fetus, a rare condition and not of great importance. A second showed miliary tuberculosis in the placenta, but a number of placentas were confused and the mother could not be located. A third was a case of chronic renal tuberculosis, with following miliary spread of the disease, with abortion at six months. In this the uterus, placenta and fetus were examined. A prominent feature of the lesions in the placenta was the lack of giant and epithelioid cells, necrosis being the constant lesion. The fetal blood was filled with tubercle bacilli, but there were no localized lesions in the fetus.

DISCUSSION.

DR. W. H. WELCH, Baltimore, regards the question of placental lesions as a subject of really fundamental importance in the etiology of tuberculosis. The evidence is becoming stronger and stronger that conveyance from mother to fetus is at least not so very extraordinary, and is probably far more frequent than is commonly supposed. No definite placental lesions are necessary for the passage through the structure of the tubercle bacillus. That tuberculosis in the new born does not more frequently develop has been explained in two ways; first, that the bacilli get in late and hence there is no time for tubercles to develop, and second, that the fetus is relatively insusceptible. Both reasons are probably active. There is considerable evidence to show that the fetus may harbor tubercle bacilli for weeks without the development of lesions.

DR. L. F. FLICK, Philadelphia, asked if the apparent immunity of children of tuberculous mothers was due to exposure during intrauterine life. Clinically he has noted a resistance to exposure on the part of such children for some time after birth, and he believes that with some this may last throughout life.

DR. WELCH said this was purely a clinical observation which *a priori* has nothing to indicate its impossibility. Here the fetus is acted on by the living bacilli, which, as pointed out by Dr. Flexner, is the only basis of immunity.

DR. J. H. LOWMAN, Cleveland, stated that an examination of 350 school children of tuberculous parents showed that 10 per cent. were tuberculous and a second 10 per cent. were suspicious.

Concerning Bacillus X.

DR. S. J. MAHER, New Haven, detailed experiments with this ordinary harmless bacillus which show the great power of change possessed by it under the proper conditions. When grown in certain ways it becomes acid resisting and produces caseous masses when injected into rabbits. Taken from these masses and injected into a second series of rabbits, caseous nodules are again produced.

Serum Diagnosis of Tuberculosis.

DRS. H. M. KINGHORN and D. C. TWICHELL, Saranac Lake, last year reached the provisional conclusion that the serum method of Arloing and Courmont is not a reliable test in the diagnosis of tuberculosis. Since that time they have made further tests on 247 healthy and diseased persons. Of the 247 persons, 70 were apparently healthy, 155 had tuberculosis, and 22 were doubtful cases of tuberculosis. Of the 70, 84 per cent. reacted; of the 155, there were 87 per cent. positive results, and of the 22, the test was positive in 82 per cent. There is also but little difference in the agglutinating power of the blood from the healthy and the tuberculous, the former being 14.8 and the latter 13.7. The writers conclude that the serum test is not a specific sign of the presence of tubecrulosis, and that it is of no value in the early diagnosis of the disease.

CLINICAL AND CLIMATOLOGICAL SECTION.

State Sanatoria for Tuberculosis.

DR. V. Y. BOWDITCH, Boston, advises that sanatoria be built away from cities and that they admit only incipient or recoverable cases. Advanced cases should be placed in hospitals for that purpose. The sanatoriums should not be made so large that personal supervision will be rendered impossible, as this defeats the aim of the institution. The possibilities of laboratory research should be fully borne in mind in the equipment and administration of all sanatoriums.

Therapeutic Use of Tuberculin Combined with Sanatorium Treatment of Tuberculosis.

DR. E. L. TRUDEAU, Saranac Lake, gave a summary of the impressions derived from the use of tuberculin since 1890. As a diagnostic agent it never should be used, he stated, until the failure of all other methods of arriving at a conclusion. When these have failed it may be used in exceptional cases. No immediate brilliant results accrue from its use as a therapeutic agent, but he has continued its use in spite of the popular clamor against it, partly because certain results in animals are similar to those obtained along the same lines in the treatment of infectious diseases. During later years he has used Koch's products mostly, the old, T. R., and the bacillus emulsion. During the time tuberculin has been used less and less favorable cases have been selected, but at least at first those that promised most were chosen. He has had no experience with febrile cases. Care must be used in its employment, as tuberculin is a powerful agent. Dr. Trudeau advises no physician who values his peace of mind to begin its use.

The method of use is important. A febrile reaction is not necessary, and every effort should be made to avoid its production. The agent not only acts on the disease itself, but stimulates the body cells in their work against the invasion; hence, it is best to continue a mild stimulation for a long period of time. Very small doses should begin the treatment, and if a reaction occurs, never inject again until the signs have disappeared. Six months are almost always necessary for an effect, and a year or more would often be better. Danger from the agent lies wholly in faulty administration. The opsonic index to determine dosage is as yet impracticable of application. In the more advanced cases the immediate result of the use of tuberculin may be striking, but usually this does not occur.

Of the unclassified cases with bacilli in the sputum, 64 untreated and 67 treated, lost the bacilli. Of the classified cases, 24 untreated and 44 treated, showed disappearance of the bacilli. Of incipient cases, 56 per cent. of those treated with tuberculin were apparently cured, and 50 per cent. of the untreated. Of advanced cases, 27 per cent. of the treated and 6 per cent. of the untreated were apparent cures. Of the incipient cases 79 per cent. of the treated and 63 per cent. of the untreated are living at the present time. Of advanced cases 61 per cent. of the treated and 36 per cent. of the untreated are living. The value of these statements depends on two things the accuracy of the figures and the interpretation of the results. Are the results due to the use of tuberculin or to the other factors employed? The selection of cases and the longer average stay of the treated may have something to do with the showing. Be this as it may, Dr. Trudeau many years ago formed the opinion that tuberculin may aid in the sanatorium treatment of tuberculosis and his experience leads him still to hold this view.

DISCUSSION.

DR. LAWRASON BROWN, Saranac Lake, has used the tuberculin treatment in 85 cases, with, on the whole, favorable results.

DR. E. R. BALDWIN, Saranac Lake, spoke chiefly from the laboratory viewpoint. From this view tuberculin treatment is still in the experimental stage. The essence of its effect is in the local reaction. He believes its effect is produced by the action on cells which surround the dead tissue and bacilli, rendering them capable of dissolving and removing these toxic products, and thus limiting the action of the tubercle.

DR. L. ROSENBERG, Bedford Springs, has treated 64 cases with tuberculin during the past year, with results about the same as those given by Dr. Trudeau. Some effect was attained in the early cases, more in the moderately advanced. Subjectively, all were vastly improved by the treatment.

DR. M. P. RAVENEL, Philadelphia, said the agglutinating reaction occurs in those who have no tuberculosis, hence is not due to tuberculosis at all. Dr. Baldwin's suggestion does not explain how the tubercle is walled off by fibrous tissue, which occurs in animal experiments. The whole summary of the question is that we do not yet know the tubercle bacillus or what is in it. Tuberculin differs from bottle to bottle of the same make because there is no standard for it.

Use and Abuse of Pulmonary Gymnastics.

DR. C. L. MINOR, Asheville, from a careful study of a large series of cases, has reached the conclusion that pulmonary gymnastics in selected cases of tuberculosis of the lung, are a very valuable adjunct in the treatment. Observing from time to time the size of the chest by means of the lead tape will show the good effect of the breathing exercises. He dreads the shrinkage of the incipient lung even before other untoward signs make themselves known.

DISCUSSION.

DR. NORMAN BRIDGE, Los Angeles, still believes in the principle of rest to all tuberculous areas.

DR. E. O. OTIS, Boston, mentioned tests which show that at least no harm is done by pulmonary gymnastics in proper cases. Patients all feel better during the exercises.

DR. H. M. KING, Liberty, formerly had his patients practice gymnastics, now he does not. He is not convinced that they do good, even if they do no harm, and he would rather err on the side of safety.

DR. J. H. PRYOR, Buffalo, said that in the state hospital for incipient cases, the superintendent has never seen bad results from gymnastics which have been practiced for two years. An important point in this connection is that many writers in England and some in this country are against sanatorium treatment because it turns out flabby individuals who can not earn their living after going home. Breathing exercises tend to keep up bodily functions and help to put the patient in condition to stand exertion when discharged.

Other papers read in the section were "Diet in Tuberculosis," Dr. H. M. King and Prof. Irving Fisher; "The Relative Value of the Home Treatment of Tuberculosis," Dr. L. F. Flick; "Climate as a Factor in the Treatment of Tuberculosis," Dr. F. I. Knight, Boston; "A Suggestion in the Treatment of Hemoptysis," Dr. L. Brown, Saranac Lake; "Manifestations of Syphilis in Connection with Tuberculosis," Dr. J. H. Pryor, Buffalo; "What May Be Accomplished in Apparently Hopeless Cases of Pulmonary Tuberculosis," Dr. S. G. Bonney, Denver; "A Contribution to Climatic Phthisio-Therapy," Dr. E. S. Bullock, Silver City, N. M.

ILLINOIS STATE MEDICAL SOCIETY.

Fifty-sixth Annual Meeting, held at Springfield, May 15-17, 1906, under the presidency of Dr. H. C. Mitchell of Carbondale.

(*Concluded from page 1788.*)

Treatment of Compound Fractures.

DR. EDWARD H. OCHSNER, Chicago, pointed out in what cases the limb can be saved, and when primary amputation is justifiable. He spoke of the method of disinfection, including prevention of tetanus. He pointed out the indications of plastic work in the repair of bones, tendons, nerves, etc., and discussed the method of drainage and wound closure; also secondary shock and immobilization.

Use of Extension Frames in Treatment of Fractures of Thigh and Leg by Ambulatory Casts.

DR. FREDERICK MUELLER, Chicago, said that the ambulatory plaster cast is the most convenient and natural treatment for all fractures of the thigh or leg. Its application is dangerous in some cases, on account of the possibility of disarranging a fracture once set. The author described a new apparatus which, besides showing all the advantages of the Lorenz apparatus, is especially built for general use in the treatment of fractures. The setting of all kinds of fractures can be accomplished by this apparatus with the greatest convenience for the surgeon as well as for the patient.

Operative Treatment in Fractures Presenting Obstacles to Reductiog.

DR. WILLIAM FULLER, Chicago, drew the following conclusions: 1. That the unsatisfactory results hitherto obtained in practically all cases when treated conservatively will not meet the continued approval of surgeons familiar with modern surgical technic. 2. That the indications for radical treatment are postive and certain, and that the safety of the procedure is unquestioned. 3. That the operation offers in this class of cases the only reliable means of arriving at a correct diagnosis, the only basis on which rational and scientific treatment may be enunciated.

Problems in Appendicitis.

DR. H. N, RAFFERTY, Robinson, said that the appendicitis question, although hackneyed, is unsettled in many respects, as shown by bedside contact with individual cases. There is nothing new to offer in the way of diagnosis or treatment. All extremes have been reached in formulating methods of treatment, yet mortality prevails. Difficulty in the conduct of cases is often due to inability to judge the extent of the lesions from either subjective or objective symptoms. The author pointed out how much safer for both patient and practitioner is the doctrine of conservative radicalism over that of radical) conservatism.

Angioma and Its Surgical Treatment.

DR. CARL BECK, Chicago, gave a brief historical review of this condition and its treatment, and dealt with the present method of surgery in angiomatous growths. He referred to the Payr and Wyeth method; to excision; the electro-surgical method, and described his own method of subcutaneous excision and suture with the gradual growth of normal neighboring skin.

Shortening of Round Ligaments at Internal Ring for Persistent Retroversion of Uterus.

DR. FRANKLIN H. MARTIN, Chicago, gave a description of the technic of shortening the round ligaments through the internal ring after opening the abdomen by a ventral incision. It is accomplished by making a stab wound through the aponeurosis of the external oblique at the point where it passes over the internal ring. Through this opening is passed a pair of sharp artery forceps, penetrating the peritoneum at the point beneath the internal ring, grasping the round ligament within an inch and a half of its insertion into the uterus, and drawing the same through on the aponeurosis and securing it there by means of a non-absorbable suture. He considers the operation unique in its simplicity; there is perfect security of the round ligaments. He employs the strong ends of the round ligaments and shortens the ligaments in the line of their normal axis.

Complications and Emergencies Met with in Surgical Treatment of Ovarian Cystoma.

DR. GEORGE L. EYSTER, Rock Island, enumerated and described the various complications of ovarian cystoma: Twisting of the pedicle; hemorrhage into the cyst; infection and suppuration; adhesions; displacement due to enlargement of other pelvic or abdominal organs. He made a plea for the split flap method of relieving such sessile adhesions to the abdominal viscera as may endanger their integrity by the ordinary method of enucleation. He reported two cases illustrating some of these complications and emergencies.

How Can We Secure the Co-operation of the General Practitioner in Surgical Treatment of Enlarged Prostate?

DR. CARL E. BLACK, Jacksonville, gave the history of surgery of the prostate, with special reference to surgical failures and their influence on the profession. He said that it is not surprising that it is difficult to have the present operations accepted. What proof is there of the correctness of the present surgical procedures? He spoke of the influence of medical organizations in disseminating information, and their use for postgraduate instruction. He pointed out the apparent conflict between medical and surgical advice, and referred to the weakening influence of the division of the profession into societies and sections of specialists. He discussed the value of papers on surgical topics by general practitioners.

Prostatectomy.

DR. JOHN B. MURPHY, Chicago, pointed out the indications for, the limitations and clinical results of, prostatectomy, saying that the indications are now well accepted and clean cut. The early operation is the one that precedes catheter life, severe vesical infection, not to speak of ascending pyelitis. The technical procedure as to route is always elective in the individual case. The results have been very gratifying as to urinary continence, as to dispensing with the catheter, the cure of suppurative cystitis, absence of fistulæ, prevention of epididymitis, and life-saving. There is no operation that taxes the surgeon's judgment as to the personal resistance equation so much as the operation of prostatectomy.

Vasectomy With or Without Subsequent Anastomosis.

DR. G. FRANK LYDSTON, Chicago, read a paper on this subject which will be published in full in THE JOURNAL.

Treatment of Blennorrhea of the Lachrymal Sac.

DR. W. O. NANCE, Chicago, said that chronic dacryocystitis is an exceedingly annoying process, and a source of danger to the integrity of the eye. The course of the disease is almost invariably obstinate and frequently results in months and even years of treatment by probing, syringing and correction of nasal abnormalities. The removal or destruction of the diseased mucous membrane of the lachrymal duct is positively obligatory as a preliminary operation on the globe of the eye. He pointed out the other indications for extirpation of the sac, and suggested some practical points concerning the technic of operation. He spoke of the essentials of success in operating, and described the changes in the lachrymal gland following the extirpation of the sac.

Operative Treatment of Chronic Discharges from the Ear.

DR. A. E. PRINCE, Springfield, said a very large percentage of cases of middle-ear discharge is due to chronic suppurative mastoiditis. He pointed out the complications which are liable to result when the disease is not controlled. Attention was directed to the results of the efforts of Nature to bring about a spontaneous cure. It is the duty of the surgeon to assist Nature. He spoke of the results of imperfect operations in which the surgeon has failed to remove all the cells, which actually increase the danger of fatality. He summarized the points in the radical operation which are designed to bring about a permanent cure in the least possible time, and cited illustrative cases.

Carcinoma.

DR. GEORGE N. KREIDER, Springfield, spoke of the popular agitation for the early operative treatment in carcinoma. He referred to the remarkable superstitions about the disease, and

said that the affection is not so fatal as is generally supposed. There is great need of teaching physicians and the public the early symptoms. Reference was made to the great number of uneducated persons who are using the strongest, most painful means of treating the disease. Washes and salves are entirely useless. All abnormal growths should be extirpated early. Early extirpation in cancer is absolutely necessary. Inoperable cases should be treated with the *x*-ray, and the patient be given hopes of recovery.

Operative Treatment of Superficial Carcinomata.

DR. DANIEL N. EISENDRATH, Chicago, said that by superficial carcinomata are understood those of the lip, tongue, ear, extremities and external genitalia. The reason for recurrence in many of these cases is that no attention, or but little, has been paid to the removal of the secondary deposits in the surgical anatomy of the lymphatic supply of the above regions. He made a plea for a thorough removal of the secondary foci simultaneously with the extirpation of the primary growth, saying that the two operations can be done at one sitting. The extirpation of lymph nodes should precede that of the primary tumor on account of the lesser danger of infection of the operative field. He described the technic as used by him in his surgical work.

Logic of Abdominal Pain.

DR. J. L. WIGGINS, East St. Louis, said that one of the fallacies that is general among the laity and altogether too prevalent among physicians is that the summoning of the surgeon presumes an operation. Anoth r equally vicious is that operations are expedient only as a last resource. Considering the frequency with which these errors obtain, the surprise is not that surgery falls short of perfection, but that it is not altogether discredited. When we consider the safety and simplicity of an operation when a disease is in its incipiency and confined within the lumen of a dispensable organ, and then contemplate the rapid change incident to the escape of infectious material and consequent local or general peritonitis, we feel that the surgeon may be absolved from the charge of excessive zeal in his endeavor to impress on the general profession the vital importance of an early and exact diagnosis, supplemented by an immediate operation whenever an operation is indicated.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. J. F. Percy, Galesburg; vice-presidents, Drs. L. H. A. Nickerson, Quincy, James H. Stowell, Chicago; secretary, Dr. E. W. Weis, Ottawa (re-elected); treasurer, Dr. E. J. Brown, Decatur (re-elected).

Delegates to the American Medical Association: Drs. George H. Webster, Chicago; J. L. Wiggins, East St. Louis; O. B. Will, Peoria; Charles L. Mix, Chicago. Alternates: Drs. T. N. Rafferty, Robinson; L. C. Taylor, Springfield; J. C. Foley, Waukegan; J. W. Hairgrove, Jacksonville; J. P. Whitley, Petersboro; John C. Cook, Chicago; William Barnes, Decatur, and T. J. Watkins, Chicago.

Resolutions Adopted.

The following resolutions were adopted:

Resolved, That the Committee on Medical Legislation be instructed and the members of the society urged to work for the passage of the bill by the next General Assembly of Illinois, which shall provide that all bottles or packages containing drugs shall bear a statement on the label of the quantity or proportions of alcohol, narcotics or other poisons which may be contained therein.

Resolved, That the Illinois State Medical Society direct its Committee on Medical Legislation and urge its members to do what they can to secure the passage of the Pure Food Bill, now before the House of Representatives, except the amendment introduced into the bill by the house committee, providing for the appointment of a Commission of Experts. It requests that this amendment, which would probably decrease the efficiency of the measure, be eliminated.

Resolved further, That the Committee on Medical Legislation and the members of the society be requested to oppose any amendment to this bill that would essentially change the provision of the bill as it came from the house committee, requiring the labeling of medical packages containing alcohol, narcotics and other poisons.

Resolved, That the Illinois State Medical Society direct its Committee on Medical Legislation and urge its members to do what they can to secure the passage of the bill to increase the efficiency of the medical department of the Army, which is now before the House of Representatives.

WHEREAS, The American Medical Association, through its Council on Pharmacy and Chemistry and its JOURNAL, edited by Dr. George H. Simmons, has undertaken a campaign of education and of practical work against the nostrum evil in its various phases: therefore be it

Resolved, That the Illinois State Medical Society fully endorses this great work and urges its officers and members to co-operate in every way to further this cause.

HEREAFTER PAPERS TO BE READ BEFORE GENERAL BODY.

WHEREAS, This is largely a society of general practitioners who are of necessity interested in all branches of medicine and surgery: therefore be it

Resolved, That the Committee on Scientific Work be instructed for the next year's program to provide one day for the medical section, at which papers on purely medical subjects shall be presented; one day for the surgical section, at which papers on purely surgical subjects shall be presented; and one day for a joint meeting, at which papers on borderland subjects and subjects of mutual interest to all shall be presented.

Rockford was selected as the place for holding the next annual meeting, the third Tuesday in May, 1907.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-first Annual Meeting, held at Hot Springs, Va., May 22-24, 1906.

(*Continued from page 1792*).

Dilatation Versus Incision of the Gravid Uterus.

DR. EGBERT H. GRANDIN, New York, said that incision should never be resorted to when the complication calling for intervention justifies delay. Thus induction of labor in a case of pelvic contraction, interference in many cases of impending toxemia, as also in most instances of placenta prævia, call for dilatation. On the other hand, the acute toxemias, the urgent instances of placenta prævia, call for incision. The operative methods to be considered are abdominal and vaginal incision and manual and instrumental dilatation. Broadly stated, in pelvic contraction, whenever it is doubtful that dilatation or vaginal incision will permit of delivery, abdominal incision is called for. In the acute toxemias, where the time element enters as a factor, and in rare acute cases of placenta prævia, vaginal incision is justifiable, else dilatation should be the rule after a prescribed technic. Such devices as the Bossi dilator should receive the unqualified condemnation of American obstetricians. They are needless where the educated hand exists; they are dangerous under any condition. In the event of incision being indicated, the vaginal Cesarean section is to be commended as preferable to the Dührssen incisions. The indication for either is extremely limited.

Vaginal Cesarean Section.

PROFESSOR DUHRSSEN, Berlin, Germany, summed up the indications for this operation as follows: Vaginal Cesarean section is indicated when, in the case of an imperfectly dilated cervix, which will not permit of dilatation by gentler means, the life of the mother or the child is brought into danger. The presence of an operator experienced in vaginal operations is required. Imperfect dilatation of the cervix might be caused by pathologic changes in the neighborhood of the lower uterine segment, or danger to the mother and child might arise when the pains had as yet caused insufficient opening of the os. In the first, the case is that of an absolute, while in the second it is that a relative obstruction to delivery. The first must be removed because it leads to danger for the mother and child. In the second the danger is already present and requires the immediate emptying of the uterus. Among the special indications he mentioned that of eclampsia. He first established the principle that on account of the independent nature of eclampsia it is best to empty the uterus by narcotics as soon as the diagnosis is made.

He has collected 376 cases of vaginal Cesarean sections, with 48 deaths, a mortality of 12.7 per cent. This high mortality was not due to the dangers of the operation, but to the serious diseases for which operation was undertaken. This proved that the greater operation, namely, the radical vaginal Cesarean section, has a lower mortality than the conservative vaginal Cesarean section. Of 53 cases of extirpation of the uterus after vaginal Cesarean section only five patients died. This further proves the low mortality of the conservative Cesarean section in clinics where immediate deliveries in cases of eclamp-

sia have been effected according to the author's teachings and directions. Veit had only one death in 33 cases, Bumm only one death in his last 40 cases. He mentioned two deaths in 12 cases of vaginal Cesarean section. One was a woman moribund with heart disease, who died immediately after the uterus was emptied. The other was a case of eclampsia with pulmonary tuberculosis as a complication. She was first cured of the eclampsia; the wound healed perfectly, the uterus was completely involuted, but she died in four weeks of tubercular pneumonia.

The Possibility of the Development of Cancer in the Cervical Stump Following Supravaginal Hysterectomy.

DR. ANDREW F. CURRIER, New York, said that the cases in which this complication might arise are usually those in which the uterus has been removed for myoma. That myoma frequently coexisted with cancer is a matter of common observation. Piquand collected 45 such cases, in 24 of which it was thought that the fibromuscular elements had been transformed into epithelial cells, although in some of them there were preexisting cells which proliferated and developed malignancy. These cells are supposed to have been derived either from the embryonic remains of the Wolffian or Muellerian canal, or to be simply epithelial ingrowths into the fibrous tissue. The author is satisfied from his own experience that the coexistence of cancer and myoma is much more frequent than Piquand seems to think. Noble, in an analysis of 1,188 cases of fibroid tumor operated on by various surgeons, found 29 in which cancer of the corpus uteri was a complication, 12 in which there was cancer of the cervix and one in which there was cancerous infiltration of a fibroid tumor arising from adenocarcinoma of the corpus uteri by metaplasia. The author has not yet seen any conclusive evidence that myoma is transformed into carcinoma, and histologically one would not expect such a sequence.

The suggestions which occur to him in connection with the consideration of this subject are the following: 1. The necessity of more careful clinical and pathologic records, both public and private, in all the cases in which supravaginal hysterectomy is performed. This will probably result in the discovery of cancer of the endometrium in cases in which it was not suspected, and will probably bring to light additional facts in regard to the history of the evolution of cancer. 2. The periodical examination of patients who have undergone the operation in question at not longer than six-month intervals. This is especially desirable for those whose tissues are in a bad condition of nutrition or who suffer from an hereditary taint. 3. Complete removal of the uterus offers greater security from cancer than retention of the cervix. If the patient's history reveals any conditions which suggest the possibility, near or remote, of future degeneration of tissues, complete extirpation should be the invariable rule.

The Search After Truth.

DR. RICHARD B. MAURY, Memphis, in his address referred to the deaths of Dr. A. Palmer Dudley, New York; Dr. James R. Chadwick, Boston; Dr. Arthur W. Johnstone, Cincinnati, and Dr. R. Stansbury Sutton, Pittsburg, which occurred during the year. He then made some remarks on the subject of uterine displacements, and referred to a discussion on ante-flexion before the society in 1888, which was participated in by T. Gaillard Thomas, Grailly Hewitt, Sir William Priestley and others, the conclusion having been reached by those men at that time that the man who would not use pessaries in the treatment of anteflexion was unfit to practice gynecology. The intrauterine stem had passed out of the history of gynecology, perhaps forever, and would never again come into favor. The knowledge of pelvic inflammation was so fully disseminated that every practitioner realized the peril to a woman from its use. Maury said that when one considers the various operative procedures which have been devised for the cure of backward displacements and notes that nearly all of them involve the shortening of one set of ligaments or another, or else the suspension of the uterus from above, he must conclude that the present practice is generally accepted by the profession. Maury discussed at considerable length how the uterus is sustained almost entirely by its ligaments, but said that some of the teachings regarding this matter are erroneous, in that the proper supports of the uterus are not the ligaments but the various structures which constitute the two segments of the pelvic floor, as demonstrated by Hart and Barbour.

Results of Vaginal Section and Drainage in Early Cases of Ectopic Gestation.

DR. WILLIS E. FORD, Utica, N. Y., reported 12 cases, which were all seen before rupture had occurred, some of them as early as in the eighth week. In all the cases the incision was made cautiously into the sac, the finger being used to open into it, and the contents examined before the finger was wholly withdrawn, so as not to lose the landmark. In no case was all the blood emptied at the time of the incision, but gauze was carefully passed into the opening and very firmly packed to prevent hemorrhage and allowed to remain for a week before removal. In this way hemorrhage was avoided and the operation was almost trivial in its consequences. The fact that the patients operated on early almost no trace of anything wrong was left in the pelvis afterward, and that the operation was so safe and so certain in its results, impressed him that the society should urge early diagnosis and early operation of all cases of extrauterine pregnancy. If the teaching in the medical schools could be so modified as to impress on medical students a more careful consideration of the subjective symptoms until skill enough has been acquired to enable the verification of the diagnosis to be made with certainty, he is sure that these cases of ectopic gestation would be seen early enough to be operated, and thus prevent rupture and hemorrhage in a large number of instances.

(To be continued.)

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Chorea.

In the treatment of chorea David Inglis, in *Pediatrics*, states that one must keep in mind that it is not a local disease, but one which involves the general impairment of the cerebral functions, and produces motor disturbances. He regards rheumatism as probably the most common cause of this disease. Reflex chorea, however, should not be forgotten. In the treatment, in addition to the removal of the cause, he states that there are practically two things to be done. The first is to stop the waste of nervous energy of the patient, in order to build up nutrition of the neuron bodies, and to lessen the emotional and mental expenditure. Consequently, the patient's time should consist of rest, so far as possible; a nagging mother and an irritable nurse may do a great deal more harm than good in these cases. The amount of sleep should be as great as possible. He makes it a rule to put choreic patients to bed early and allow them to arise late, and in the afternoon they should be placed in a dark room and allowed to rest for an hour or two, if possible. Sleep, he states, must be obtained at all hazards, and, if need be, chloral may be given for its soporific effects, and he regards it as the surest of all hypnotics, especially as children bear it unusually well. [It must be used with care, however.]

The second important principle of treatment, according to the author, is that of increasing the nutrition of the neuron bodies, and this consists largely in the question of food supply, as most of these patients have but little appetite, and it is not infrequently a difficult matter to secure the ingestion of an abundance of nourishing food. He, therefore, recommends forced feeding when necessary. In this connection he speaks of the mistake of allowing these children to eat three large meals a day, as it weakens the stomach, which is unable to care for so much food at one time. He, therefore, recommends well-cooked nutritious food in small quantities, at frequent intervals. The food should consist especially of fats, which play a great part in cerebral nutrition. Cream, butter, the fats of meat, and, if necessary, cod-liver oil, are valuable

in this disease. In order to stimulate the protoplasm of the cells that they may be able to take up the food supplies brought to them, he recommends arsenic and phosphorus and perhaps strychnia, as of value in stimulating the metabolism of the cell bodies.

He warns against the possibility of over-stimulation by arsenic, as in some cases the same poison which tends to build up may damage the neuron and also the quality of the blood. He recommends, therefore, a combination of iron, arsenic and strychnin in moderate doses rather than heroic doses of arsenic alone. In connection with the dietetic treatment he mentions the use of raw eggs as of value in the formation of fat, because of the lecithin contained in the yolk, and he is of the opinion that it acts in a manner similar to arsenic as a stimulant to the cell metabolism.

Riviere, in the *British Med. Jour.*, recommends ergot and arsenic in chorea. The ergot may be given in doses ranging from 30 to 60 minims of the fluid extract, three times a day, combined with liquor strychninæ (1 per cent. solution) 2 minims (.12). In those cases not improved by the ergot he advises the administration of arsenic. A mixture of the two may be given as follows:

℞. Ext. ergotæ flu.....3i | 4
Liq. potassii arsenitis.....m. iii | 20

M. To be taken at one dose and repeated after each meal.

The foregoing combination is recommended by Riviere as a very effectual one in all cases.

Hollopeter, in the same periodical, recommends prolonged warm baths in shortening the attacks of chorea. The child should be placed in a bath at a temperature of from 90 to 98 F. and entertained by the mother or nurse by floating toys or by other methods. The entire body except the head and neck should be kept immersed for at least one or two hours. These baths should be given twice daily.

F. M. Pope states that in all suitable cases arsenic should be administered as follows:

1. Administer a mercurial purge.
2. Place the patient on a bland and easily digested diet.
3. Give the arsenic well diluted and in the same dilution throughout, usually giving 2½ minims of Fowler's solution to the ounce of water.
4. Do not discontinue this medication on the first attack of vomiting, as the vomiting is often due to accidental causes.
5. Increase the dose daily.
6. Keep the patient in bed throughout the treatment.
7. If vomiting persists, discontinue the arsenic for twenty-four hours.
8. Examine the patient daily for any toxic action.

Tabes Dorsalis.

In considering tabes dorsalis, F. von Raitz, in the *Medical Record*, states that the treatment must begin by preventing impairment of nutrition and when impairment has already set in by restoring the nutrition, if possible. To prevent any failure of nutrition each patient who has had any infectious disease, who has indulged in sexual excesses, who has been subject to mercury, iodin, lead or any other organic or inorganic poison, should be observed during a period of two or more years, and as soon as any disturbances of the reflexes are shown, the spinal cord and the brain should receive attention by the applications of such methods as are capable of increasing the nutrition to the affected parts. The earlier that tabes is recognized, therefore, the greater the opportunity for a cure. The first step to increase the nutrition of the entire body is to place the patient under the most favorable conditions, such as pure air, sunshine, congenial surroundings, plenty of sleep, and a sufficient occupation of both mind and body. He recommends in this connection the salt brine friction of the body in a warm bath, at a temperature suitable to the patient, and repeated twice a week. This keeps the pores of the skin open and promotes circulation. The clothing must be so adjusted as to keep the patient's body comfortably warm, but not too hot. The diet must be along the lines which will best agree with the patient. The digestive power is, as a rule, impaired, consequently eating slowly and thorough mastication should be enjoined as very essential. Concentrated food should be avoided, as it tends to overload the system with material that can not be oxidized, and it also weakens the muscular power of the alimentary canal and is a factor in the production of constipation and indigestion. Liquids may be taken in sufficient quantities between meals. Alcoholic beverages, as a rule, should be omitted. As regards the medicinal treatment of tabes, he states that there is no preparation in existence which has any beneficial effect on the tabetic lesions, consequently the organs of the individual must be treated as indications arise. For instance, he regards the necessity in some cases of administering strychnin to stimulate the circulation, and in cases of weak digestion rhubarb, gentium and nux vomica, and when the bowels do not act a simple laxative should be administered. When the small intestine has lost its tone, the powdered extract of hydrastis, from 2 to 6 grains (.12-.36) a day is recommended in the majority of cases. And as a general tonic he recommends a capsule composed as follows:

℞. Ferri sulphatis.....gr. ii | 12
Sodii carbonatis
Extracti gentianiæ, ää.....gr. 1/4 | 015
Aloin.....gr. 1/8 | 008
Strychninæ sulphatis.....gr. 1/30 | 002
Ergotin.....gr. 1/5 | 012

M. Ft. capsula No. i. Sig.: One such capsule a half an hour before each meal.

Before a lesion like the tabetic lesion can be arrested the whole system must be improved. For this reason he recommends the foregoing outline of treatment.

In connection with this outline of treatment he also recommends the use of electricity, either the galvanic current or the high-frequency current, and in some cases the faradic current. To increase the nutrition of the cord by electricity, he states that both the low and the high tension currents are of value. In the use of galvanism he recommends the positive electrode attached to a large electrode be placed over the abdomen, and the negative electrode placed under the lumbar spine. In other words, he advises the negative electrode applied nearest the seat of the trouble, because under the action of the negative pole fluids are attracted which are alkaline in reaction. He speaks in this connection of the fact that when nutrition fails the normal alkalinity of the tissues diminishes in proportion to this condition.

Beside the polar effects, the constant current, if properly employed, exerts a beneficial influence on the entire body in the way of pacifying the nervous system and strengthening the nerve centers for their duties. To increase the nutrition of the brain he recommends that the positive electrode be placed under the occipito-cervical region, and the negative electrode placed over the frontal area, using a current of from 5 to 10 milliamperes. To stimulate the nutrition at the pathologic foci still more, and to give the tissues rest from the galvanic current, he recommends the use of the high tension current through a Geisler tube, to the spinal cord and brain. To increase the nutrition of the muscular system and peripheral nerves a faradic current should be employed.

The Treatment of Tenia.

The following outline of treatment of tenia is recommended by J. Kingston Fowler in the *British Med. Jour.*: First, the patient must be kept in bed. For two or three, or in some cases for four days, the patient is placed on the following diet: First—Beef tea, 2 pints; port wine, 4 ounces; rusks, 2. Second—During the same period the patient takes extract of cascara sagrada, gr. 2 (.12) three times a day. Third—On the fourth day, early in the morning, the compound infusion of senna, ounce 1 (30) is given, and at 9 a. m. a capsule containing the extract of male fern, minim 15 (1.00), is administered and repeated every fifteen minutes until four doses are given, when the dose of senna is repeated. If by 1 p. m. the worm has not been passed nor the head found a second course of treatment with male fern at intervals of fifteen minutes is begun, and continued for two or three doses, followed in an hour by a purgative. If then the treatment is not successful a third course is prescribed. He does not recommend the continuance of this treatment without interval of a day, as the patient may become exhausted.

Medicolegal

Rules Pertaining to Skill Required of Physicians.

The Supreme Court of Appeals of West Virginia holds, in Dye vs. Corbin, an action for alleged malpractice in the diagnosis and treatment of an injured ankle where a judgment in favor of the defendant is affirmed, that, in an action for damages against a physician, for negligence and want of skill in the treatment of an injury or disease, the burden is on the plaintiff to prove such negligence or want of skill, resulting in injury to the plaintiff. A physician is not required to exercise the highest degree of skill and diligence possible in the treatment of an injury or disease, unless he has by special contract agreed to do so. In the absence of such special contract he is only required to exercise such reasonable and ordinary skill and diligence as are ordinarily exercised by the members of the profession in good standing, in similar localities and in the same general line of practice, regard being had to the state of medical science at the time. A physician does not warrant or insure that his treatment will be successful, in the absence of special contract to that effect. Failure on the part of a physician to effect a cure does not alone establish or raise a presumption of want of skill or negligence on his part. Where a physician exercises ordinary skill and diligence, keeping within recognized and approved methods, he is not liable for the result of a mere mistake of judgment. A physician is liable for the result of an error of judgment, where such error is so gross as to be inconsistent with that degree of skill which it is the duty of a physician to possess.

Referring to the evidence of certain physicians in this case, the court says that it seemed to be directed particularly to the failure of the defendant to give an anesthetic. It was to be observed that these physicians did not say that the failure to give an anesthetic produced a bad result on the injured ankle, or that the treatment of the ankle was improper. The treatment might have been attended with more pain to the patient because an anesthetic was not administered, but the treatment of the ankle might have been the same, whether with or without an anesthetic. It did not follow that the injury to the ankle was increased or aggravated by failure to give an anesthetic. There was no evidence that the injury to the ankle was increased or aggravated by such failure. Such increased or aggravated injury to the ankle could not be presumed without evidence. Besides, it was not shown that, under the standard of skill and diligence by which the defendant was bound, it was his duty to administer an anesthetic, considering time, locality and the condition of the patient.

Again, the court says that proof showing mere conjectural possibility that unfavorable results were due to want of care or skill is not sufficient to make a physician liable. It has also been held that the fact that a physician fails to discover a fracture or dislocation does not alone establish or raise a presumption of want of care on his part.

Undesired Notices and Right of Privacy of Physician.

The Supreme Court of Louisiana says that the accepted statement of facts in the case of Martin vs. the *Picayune* showed the plaintiff to be a well-known and reputable physician, who was a member of a medical society which condemned advertising by physicians in the public press and considered it as unethical. This society adopted resolutions and appointed a committee to interview representatives of the press and request them not to publish the names of members of the regular profession of medicine or place them by publication in the attitude of advertising in any form, as regular practitioners did not resort to advertising. As a member of the committee, the plaintiff called on the defendant's representative, explained why it was that regular physicians did not resort to advertising, and handed him a copy of the resolutions. In a few days the defendant company, he showed, published an article which he deemed injurious and damageable. The article set forth substantially that the case of a young lady named therein was unique. That she has been an invalid for years from congenital hip disease, and that owing to the skillful treatment of the plaintiff she had almost entirely recovered. That different physicians had tried their skill on the affected limb and had not met with success. That when Dr. Lorenz visited New Orleans and treated patients, the plaintiff had made a close study of his methods and manner of treatment, which he applied in treating the young lady named. The story appeared to have been obtained from the patient's father, who was, the article stated, in substance, overjoyed, and to whom it afforded delight to say kind things of the physician, the plaintiff.

The conclusion of the district court, after setting forth that the story, if untrue, was enough to irritate and annoy, was that that irritation and annoyance are not of themselves actionable; that it must appear that they are accompanied by substantial injury; that the assertion as a fact that by the use of advanced methods of celebrated surgeons and by his own skillful treatment he had achieved success were not grounds sufficient for the plaintiff to recover damages for injury inflicted; that there was no actionable injury traceable to this publication; that the truth or falsity of the publication was immaterial to the issue presented. Touching the plaintiff's allegation that it put him in the attitude of an advertising quack, thereby bringing him into contempt, the judge said: "Could I satisfy myself that the plaintiff meant to charge and prove that not only such was the effect of the publication, but that it was defendant's purpose to produce on the mind of the public and of plaintiff's friends and fellow-physicians the impression that plaintiff had caused such publication to be inserted in its paper for advertising purposes, I would have no hesitation in concluding that a cause of action had been set forth; for any false impression, produced intentionally or injurious to some one, is actionable libel on him, no matter how the publication or what the purpose used to effect a purpose." Again, it was stated in substance that a cause of action can not be eked out by inference. The intention to be injurious did not appear in the article in question. It should have been specifically alleged. The falsity of the article was not, under the circumstances, sufficient ground of action. It must appear that "defendant meant to produce the impression that plaintiff procured this publication for the purpose of advertising himself, whilst in fact he had not done so."

But the Supreme Court, which reverses the judgment rendered by the district court in favor of the defendant on an exception of no cause of action, says that there is no question, had the plaintiff amended his petition and alleged as before mentioned, that he would have had an indisputable cause of action. But this court really does not think there was downright necessity of going to that extent in order to aver a cause of action. In this court's view, if the publication was malicious, and it was injurious to the plaintiff, it would afford ground for action. True, the words of the article were of praise and congratulation, and no one would seriously contend that they were in themselves actionable. True, words of praise and gratulations are not actionable. But words of praise and gratulations may—on rare occasions, fortunately—lead to injurious consequences, lose their grace and charm, and become actionable. The physician, who by inference finds himself classed with quacksalvers, will be entitled to a hearing, or at any rate should not be turned out of court, unless it appears that he is in error in thus contending. Recently this court held that slanderous words—and, it follows, libelous words—may be actionable, even though they do not consist of an unequivocal and positive assertion. The common law system has not gone as far as the civil law in upholding actions for injurious words spoken or written. Yet even under that system there are decisions which uphold the principle laid down under the latter law.

The Supreme Court thinks that under the circumstances here the cause should be heard on the merits and the right of parties determined after having heard the testimony. In other words, it holds that as the record was made up, the inference from the text of the article complained of, under the asserted facts and circumstances, led to the conclusion that the plaintiff should be heard on the merits. It adds that it is not inclined to fan into greatest importance an issue which can not be thus characterized. At the same time it is evident to the court that there is a principle involved—the right of privacy and its extent, for it has considerable limitations. It can not be decided on an exception of no cause of action.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

June 9.

1 Circumcision. J. Knott, Dublin, Ireland.
2 *Clinical Observations on Salpingitis and Parametritis in Nulliparæ. S. W. Bandler, New York.
3 *Ionization by Means of the High Frequency Current in the Treatment of Tuberculosis. A. Goss, Adams, N. Y.
4 Fresh-air Homes and Medical Work in Connection with Them. L. R. Williams, New York.
5 *Resection of Stomach for Carcinoma. F. Torek, New York.

2. **Etiology of Salpingitis in Nulliparæ.**—Bandler says that the cause of salpingitis in nulliparæ when there has been no intrauterine manipulation is in most cases a latent unrecognized gonorrhea. He cites a number of instances that have come under his notice, and says that numerous cases of pelvic pain, sterility and ectopic gestation are the result of such cases of salpingitis.

3. **Ionization of Tuberculosis.**—Goss declares that in a state of health Nature seems to furnish in non-susceptible cases protective proteids found in the blood plasma called alexins. He believes the form of the electrode to be of great importance. He uses a vacuum tube for surface application which, instead of having a flat surface, is concave on the bottom with a wire extending lengthwise through the tube and a large disk made concave on the under surface to correspond in shape with the glass electrode and suspended about one-half inch from it. The superficial circulatory apparatus becomes greatly engorged by the application of the high frequency current, and the patient perspires profusely. By this drainage the specific gravity of the blood plasma is changed and there should then be a rapid absorption of the gases retained under the vacuum electrode. In this way the writer attempts to introduce substances into the circulation to take the place of the alexins where they are wanting. He reports a number of cases with favorable results.

5. **Resection of Stomach for Carcinoma.**—Torek believes that although in most cases of carcinoma of the stomach, when the tumor is large, a successful resection is impossible, nevertheless the procedure in each special case depends on its own merits. The operability can not be determined alone by the size of the tumor. Several questions must be considered: the ability to resect well beyond the limits of the disease, the extent of lymphatic involvement, the presence or absence of involvement of the pancreas or other neighboring organs, and the nature of the adhesions.

New York Medical Journal.

June 9.

6 *Military Hygiene of the Japanese Army. B. K. Takaki, I. J. N.
7 Arteriosclerosis: Its Relation to Disease of the Nervous System and to Disorder of its Function. J. Collins, New York.
8 *Dietetic Treatment of the Vomiting of Pregnancy. (To be continued.) L. Kolipinski, Washington, D. C.
9 *Critical Analysis of 186 Operations on the Liver and Gall Passages, and the After Results. (To be continued). C. A. McWilliams, New York.
10 *Abdominal Hysterectomy for Fibroid Tumor of the Uterus Complicated with Pregnancy and Prolonged Retention of a Fetus and Placenta. H. T. Williams, Rochester, N. Y.
11 Interscapulothoracic Amputation for Sarcoma of the Scapula. J. Douglas, New York.
12 Exfoliative Dermatitis in the New-Born (Ritter's Disease). B. M. Baker, Norfolk, Va.
13 Abuses of Ether in Abdominal Surgery. J. W. Kennedy, Philadelphia.

6. **Military Hygiene of Japanese Army.**—Takaki's paper shows that the medical officers of the Japanese army are governed by rules which take nothing for granted, prescribing directions, in detail, for the preservation of the health of the soldier at all times and under all conditions. The rules of general hygiene are very explicit, considering the care of the finger nails, hair, feet, mouth, teeth, etc.

8. **Dietetic Treatment of Vomiting of Pregnancy.**—Kolipinski states that a woman who has vomited incessantly for two or three weeks, who is too feeble to leave her bed, who has received varied and unsuccessful medicinal treatment, whose whole appearance as well as that of her family is one of alarm, who expels everything as if forced by fate, will find to her intense astonishment that the emesis does not occur after a breakfast of fried ham or bacon, that partaking of other solids improves her condition, and that she is able to be up again. Following the daily breakfast of pork in some form, with cocoa, chocolate, and corn bread, a dinner of beefsteak, roast or corned beef with rice, potatoes, spinach, cauliflower, kale or turnips, is offered. Fish, game, fowl and cheese may also be suggested, and they help to make up the evening meal. Foods which induce vomiting are water, taken freely, milk, tea, coffee, soups, and all kinds of fluids, neutral, acid and saccharine, custards, eggs, toast, and fruit. The most unstable combination of a diet is toast, eggs and sweetened tea, things which the stomach of no gravid woman in the early months will tolerate. To offer pork more than once a day is not objectionable, but it should at least be the first food taken each day until the cure is completed. The self-selected regimen in one instance was boiled ham twice a day for more than two months. Kolipinski has used this dietetic treatment in two cases of pernicious vomiting with success, and also in obstinate vomiting of the ordinary variety and believes it worthy of a trial.

9. **Analysis of Liver and Gall Passages.**—It is impossible to abstract McWilliams' paper because of its length and the many points brought out.

10. **Prolonged Retention of Fetus.**—Williams reports a case in which a dead fetus and placenta remained in the uterine cavity for nine months without undergoing decomposition and without causing serious symptoms, except a persistent nausea and gastric distress. The presence of a fibroid suggested a possible cause of the symptoms present and hysterectomy was advised. On opening the uterus after its removal a fetus and placenta, evidently of three months' development, was found in the left side of the uterine cavity in a good state of preservation. The uterine cavity below had been shut off by the encroachment of the fibroid.

The Boston Medical and Surgical Journal.

June 7.

14 *Origin and Nature of the Blood Plates. J. H. Wright, Boston.
15 Inflammation of the Frontal Sinus. H. P. Mosher, Boston.
16 Testimony of the Fathers. A. E. P. Rockwell, Worcester, Mass.

14. **Origin of Blood Plates.**—Wright believes that the blood plates are detached portions of the cycoplasm of giant cells.

Lancet-Clinic, Cincinnati, Ohio.

June 2.

17 Cancer of the Stomach from the Surgeon's Viewpoint. J. Ransohoff, Cincinnati.
18 Alcohol in Medical Practice. J. H. Kellogg, Battle Creek, Mich.
19 Pilo-Nidal Cysts and Sinuses. F. Hodges, Indianapolis.

June 9.

20 *Nature and Prognosis of Malignant Disease. J. D. Bryant, New York.
21 *How Progress Comes in Medicine. F. C. Shattuck, Boston.
22 Hysteria—Its Etiology and Nature. G. C. Altemeier, Cincinnati.

20-21.—See articles in THE JOURNAL, June 9, 1906, pages 1740 and 1746.

St. Louis Medical Review.

June 2.

23 Nephrectomy. F. C. Yeomans, New York.

American Journal of Medical Sciences, Philadelphia.

June.

24 *Self-Restraint in the Practice of Surgery. L. A. Stimson, New York.
25 *Technic of the Newer Operations for Shortening the Round Ligaments and the Ureterosacral Ligaments for the Correction of Backward Displacement of the Uterus. E. C. Dudley, Chicago.
26 *Primary Malignant Disease of the Vermiform Appendix. H. D. Rolleston and L. Jones, London.
27 Case of Primary Carcinoma of the Vermiform Appendix. W. McA. Eccles, London.
28 Case of Volvulus of the Stomach. G. Strelt, Middletown.
29 Dissecting Aneurism. A. S. Hamilton, Minneapolis.
30 *Arteriosclerosis of the Aorta. W. Ophüls, San Francisco.
31 Some Hitherto Undescribed Structures Found in the Large Lymphocytes of a Case of Acute Leukemia. J. Auer, Baltimore.
32 Teratoma of the Thyroid Gland. I. C. Herb, Oshkosh, Wis.
33 *Chronic Progressive Softening of the Brain; Report of Cases with Autopsies Simulating Cerebral Tumor. J. R. Hunt, New York.

34 *Present Status of Gastric Surgery. L. Frank, Louisville.
35 *Leucocytes in Gonorrhea. I. S. Wile, New York.
36 *The Urine in Normal Pregnancy. F. S. Mathews, New York.
37 *Bacteriology of Conjunctivitis. S. H. McKee, Montreal.

24. **Self-Restraint in Surgery.**—Stimson urges deliberation in regard to operative measures with a broad view as to the relations of the diseased structure and careful consideration of the results of the operation. He cautions against the too ready acceptance of new views and suggests that the frequent changes of theory and practice should teach the surgeon not to be overconfident of the value of the procedures that happen to be in vogue. Unnecessary removal of organs is not to be favored because they may subsequently become the seat of disease. The former thorough removal of tuberculous glands is rightly giving way to more conservative measures, and it is possible that with appropriate general treatment operation may be avoided in many cases in which it was formerly deemed imperative. Undue haste in the treatment of granulating wounds is often undesirable. The granulating surfaces may well be allowed to rest. Too active treatment of fractures and of diseased joints is to be deprecated.

25. **Shortening the Round Ligaments.**—Dudley improves Gilliam and Barret's method of drawing the round ligaments through an artificial canal into the laparotomy wound by making an artificial inguinal canal on each side through which the ligament is drawn and anchored intraperitoneally so as to avoid any danger of infecting the peritoneum in case of infection of the superficial wound. If the uterosacral ligaments are lax they should be shortened at the same time. The technic is illustrated.

26. **Malignant Disease of Appendix.**—Rolleston and Jones conclude their article as follows: 1. The disease is one which renders an accurate diagnosis impossible; every case in which the symptoms drew attention to this region exactly imitated appendicitis in some form. 2. Most of the older reputed examples fail to withstand investigation, but as 80.9 per cent. of the 42 genuine examples have been reported since 1900, the disease can not be quite so rare as has been thought. The microscopic size of the growth in some instances makes it probable that many such instances have been overlooked. 3. Pathologically several varieties of carcinoma have been reported, and also sarcoma and endothelioma. The growth is usually, however, a spheroidal-celled carcinoma which is peculiar in the early age-incidence, the slight malignancy, and the resemblance to endothelioma. Colloid change is not common as has been hitherto supposed. 4. The presence of concretions is only mentioned in 3 cases out of the 42. 5. The disease is not prone to affect one sex more than the other. 6. Inflammatory changes, either chronic or acute, frequently accompany the growth. 7. The immediate prognosis and the prospects of freedom from subsequent recurrence after operation are very good, particularly in the spheroidal carcinoma.

30. **Arteriosclerosis of the Aorta.**—Ophüls expresses the following view of the process: Anatomically arteriosclerosis of the aorta is a unit. It is a chronic inflammatory process of the vessel wall which attacks all coats simultaneously, but which, as a rule, first produces more noticeable changes in the intima and adventitia. The absence of marked changes in the media in the beginning of the disease, to a certain extent, may be due to the fact that the tissues composing the muscle, especially the involuntary muscle, do not respond so readily to the same irritation which in ordinary connective tissue would produce severe anatomic alterations. The earliest changes in the intima and in the adventitia are a fibrous thickening accompanied in the adventitia by a greater accumulation of cells, probably because of the presence of the vaso vasorum. The fibrous thickening, especially of the intima, is followed by fatty degeneration, which may and often does extend into the media. The author reports 75 cases.

33. **Progressive Softening of the Brain.**—Hunt reports two cases of progressive softening of the brain due to arteriosclerosis or other vascular change in which the clinical course suggested cerebellar tumor. In general the clinical picture was that of a progressive and gradually developing hemiplegia, and the general cerebral symptoms resemble those described by Wernicke as chronic progressive softening without evident vascular lesion. The main trunks of the vessels of the circle of Willis were not occluded, but histologic study demonstrates the obliteration of the central end arteries in the ganglionic and capsular regions. The existence of a progressive softening not dependent on vascular changes may well be questioned. The clinical importance lies in the possible resemblance to abscess, encephalitis and tumor of the brain. Surgical interference in such a case might lead to infection, to which the softened tissues are peculiarly liable.

34. **Gastric Surgery.**—Frank's article is an enthusiastic plea for the more general recognition and extension of the field of gastric surgery.

35. **Leucocytes in Gonorrhea.**—Wile concludes as follows: The polynuclear neutrophiles are highest in acute anterior urethritis and decrease with involvement of the posterior urethra and are lowest in chronic gonorrhea in male or female. The mononuclear leucocytes are increased in the chronic processes and vary inversely with the polynuclear neutrophiles. The eosinophiles are slightly higher in acute anteroposterior urethritis than in acute anterior urethritis. That this is due to involvement of the glands or epididymis, prostate or posterior urethra is very doubtful, as the eosinophiles are comparatively lessened in chronic cases. The basophiles are hardly affected by the disease. There is no relation between appearance of any type of leucocyte in the blood and in the discharged pus. The eosinophiles are of no diagnostic value in gonorrhea.

36. **Urine in Normal Pregnancy.**—Mathews finds that from the fourth to the eighth month of pregnancy the specific gravity of the urine is considerably diminished. This depends on two conditions: 1. The pregnant woman during these months secretes rather more urine than the non-pregnant. 2. The nitrogen elimination is diminished. Three hundred grains of urea (determined by the hypobromite method) is above the average toward the end of pregnancy. This is in part explained by the body's retention of nitrogen and perhaps, in part, by variations in the pregnant woman's diet.

37. **Bacteriology of Conjunctivitis.**—McKee describes the findings in the three most important forms of conjunctivitis, pneumococcus, Koch-Weeks and Morax-Axenfeld. The bacteriologic diagnosis is of great aid to the prognosis and treatment. A pneumococcus infection is not very likely to spread by contagion, while the Koch-Weeks conjunctivitis will go like wildfire through a family. Specific treatment is known for the Morax-Axenfeld infection, and the best treatment for pneumococcus disease is different from that of the Koch-Weeks variety. In the milder forms of conjunctival irritation dependent apparently on errors of refraction, if not relieved by the correction of the refraction and astringent drops, bacteriologic examination will reveal the exact condition and lead to successful treatment.

Medicine, Detroit, Mich.

June.

38 *Treatment of Compound Fractures. E. H. Ochsner, Chicago.
39 *Certain States of Vascular Spasm and Fibrosis. H. A. Hare, Philadelphia.
40 *Arteriosclerosis as a General Disease. A. Stengel, Philadelphia.
41 Pathology and Diagnosis of Myocardial Inflammations and Degenerations. J. Daland, Philadelphia.
42 *Beriberi. P. A. Lovering, U. S. N.

38. **Treatment of Compound Fractures.**—Ochsner warns against transporting the patient too far with soiled clothing, directing that it be cut away, the limb wound, superficially cleansed and covered with gauze or other sterile cloth, the limb placed in a blanket splint and the patient taken where the first dressing can be applied. He cleanses the surrounding skin with turpentine to remove grease, etc., and applies to the wound tincture of iodin, which seals the mouths of vessels and lymphatics and prevents absorption. Too much plastic surgery should be avoided; the bone should not be wired, and the wound should not be too tightly closed. If it is desirable to apply plaster-of-Paris the space around the wound between the limb and the plaster splint should be packed with lamb's wool saturated with a solution of rubber in chloroform. When implication of a joint favors ankylosis, rest by immobilization, by limiting the growth of connective tissue, is

the best preventive, and this should be continued for three months, after which, if adhesions have formed, they should be broken up by active motion. If these measures are insufficient, forcible breaking up of the ankylosis, or some other operation, may be necessary.

39. **Vascular Spasm and Fibrosis.**—Hare emphasizes the following points: In cases of high tension due to fibrosis the nitrites can be of but little value, and the iodids with rest and massage the needful. Cases of very high tension are usually those in which the heart escapes sufficiently to help maintain the tension. As fibrosis in the peripheral vessels increases, the muscles of the larger vessels undergo hypertrophy, as does the muscle of the heart. It is quite as possible for vascular compensatory hypertrophy to rupture as for the cardiac compensatory hypertrophy to do so. This rupture of vascular hypertrophy often gives the heart a rest and permits it to recover from its fatigue, and so life is saved. It is possible, if the peripheral fibrosis be arrested, for the vessels also to regain power and a general improvement to ensue. The cardiac stimulants are not needed in these cases so much as rest and the skillful use of alteratives and vascular sedatives.

40. **Arteriosclerosis as a General Disease.**—Stengel recognizes three stages of arteriosclerosis as a general disease: 1. A preliminary one in which the symptoms due to the original etiologic factors are confused with those produced by the arterial disease. 2. A middle period in which the arterial disease is recognizable, but in which secondary organic changes have variable importance. 3. A final stage, circulatory and organic failure and terminal infections. Three types of early arteriosclerosis are observed: nutritional, neurasthenic and nervous. In more advanced stages it may attack the viscera, giving rise to: 1. The thoracic (a) cardiac, (b) aortic. 2. Abdominal, including (a) renal, (b) intestinal, (c) pancreatic, (d) hepatic. 3. Cerebrospinal. 4. Arteriocapillary types.

42. **Beriberi.**—Lovering adopts the infectious theory of the origin of beriberi and divides it into acute, subacute and chronic types. The acute form is always fatal largely in consequence of cardiac involvement. The subacute form shows paralyses, edema and slighter cardiac symptoms. The patients usually recover or else the disease assumes a chronic form. The various symptoms are due to a degeneration of the nerves. There is no specific, but salines are given to relieve constipation and edema, and digitalis seems to be the best drug to sustain the heart. In the chronic cases electricity is useful. Strychnin and other tonics are of value in improving the general condition. Prophylactic measures, isolation, disinfection, etc., should be applied as in other infections.

Annals of Surgery, Philadelphia.

June.

43 *Affections of the Thyroid Gland. G. E. Beilby, Albany, N. Y.
44 Branchial Fistula. M. J. Chevers, Manchester, England.
45 *Diagnosis of Esophageal Lesions. B. W. Sippy, Chicago.
46 *Postoperative Ileus. J. M. T. Finney, Baltimore.
47 Backward Dislocation of the Second Carpometacarpal Articulation. C. B. Lyman, Denver.
48 *Cornu Cutaneum of the Human Scalp. H. L. Nietert and E. A. Babler, St. Louis.
49 Self-Retaining Trocar and Canula for the Aseptic Evacuation of Distended Viscera. H. Lilienthal, New York.

43. **Affections of the Thyroid Gland.**—Beilby suggests the importance of bearing in mind in diagnosis of thyroid affections the general principle that if the gland is symmetrically enlarged hypertrophy is present, while if a partial enlargement occurs a cyst or tumor is likely to be found. Hypertrophy is a diffuse although not necessarily symmetrical affection, and in some cases the preponderating enlargement of one side may suggest cyst, while occasionally the development of two cysts, one on each side, may simulate hypertrophy. These cases, however, are, as a rule, easily distinguished. Simple hypertrophy usually occurs before the age of 20; exophthalmic goiter between 20 and 30. The early diagnosis of carcinoma is difficult. Age, short duration or sudden increase in size, prominence of dyspnea and dysphagia are prominent factors. The excision of simple hypertrophy should be undertaken for pressure symptoms but rarely for cosmetic reasons. The tendency to the development of carcinomata in hypertrophied glands should be taken into consideration. Partial excision has given good results in cases of exophthalmic goiter unimproved by medical treatment. In the 6 cases reported by Beilby 4 have given excellent results. The best results are those of Kocher, who cured 75 per cent. of 59 cases, with 6.7 per cent. mortality.

45. **Diagnosis of Esophageal Affections.**—Sippy classes these disorders as functional and anatomic. Functional affections may be sensory, as hyperesthesia, or motor, as spasm. Hyperesthesia is indicated by pain especially complained of when a bougie is introduced while the esophagoscope shows a normal mucous membrane. Globus hystericus is an example of esophageal spasm. Inflammation is rare unless caused by the swallowing of caustics. Ulcer seldom occurs, except from carcinoma. The symptomatology of esophageal stenosis is important, as grave mistakes in diagnosis have occurred, the difficulty being attributed to gastric disease and in some cases gastroenterostomy has been unnecessarily performed. If the symptoms indicate and there is no contraindication, the passage of a soft stomach tube should first be used to locate the seat of obstruction. The presence of carcinoma should not be assumed without taking into account other possible causes of stenosis, extra-esophageal, such as aneurisms, tumors, spondylitis, pericardial effusion, diverticulum, or intra-esophageal as tumor, cicatrix, spasm, diverticulum and foreign bodies. The diagnosis of carcinoma is made by considering the course, presence of blood in the feces, characteristic odor on passing the stomach tube, location of the growth (50 per cent. near the cardia, 40 per cent. opposite the tracheal bifurcation and only 10 in the upper part of the esophagus), and finally the appearance as revealed by the esophagoscope. The presence of secondary anemia may be of assistance. Diverticula ocurring in the upper part may show a tumor in the neck; in the lower section they may be detected by the course of bougies, the nature of the contents and by the *x*-ray after the ingestion of bismuth suspended in some thick liquid. Cardiospasm is usually easily diagnosed by the fact that while the obstruction is impervious to food, even liquids, it yields to the pressure of a tube or bougie.

46. **Postoperative Ileus.**—Finney concludes his article as follows: 1. Broca's classification into early and late varieties simplifies the diagnosis. In the former class, which so frequently is associated with peritonitis, the differential diagnosis as to variety is always difficult and often impossible. In the latter, which consists almost entirely of the mechanical form, it is usually easy. 2. Adhesions are the chief factor to be reckoned with in the attempt to prevent the occurrence of postoperative ileus, and efforts directed toward this end are likely to be productive of the best results. 3. That drainage exercises a marked influence in the production of adhesions can not be denied. 4. Prompt treatment is indicated in every case after palliative measures have been given a fair trial and have failed. The character of the operation depends on the nature of the obstruction and the condition of the patient. 5. The prognosis is unfavorably influenced by the presence of infection. In its absence it is excellent.

48. **Cutaneous Horns.**—Nietert and Babler report a case in which two horns grew from sebaceous cysts over the parietal region and were accompanied by sebaceous cysts on the face and also by a cutaneous cancer on the right side of the nose. The growths were removed without difficulty. The case suggests the possible relation of these growths to sebaceous cysts and the danger of their being transformed into cancer.

American Journal of Surgery, New York.

June.

50 Dilatation of the Non-Gravid and of the Gravid Uterus. A. Dührssen, Berlin.
51 *Excision of the Transverse Colon, Sigmoid and Rectum for Multiple Stricture and Ulcerative Colo-Proctitis. S. G. Gant, New York.
52 Atrophy of the Testicle. L. B. Bangs, New York.
53 *A Simple and Practical Method of Performing Anastomosis by Means of Two Knitting Needles. V. Pleth, Crookston, Minn.
54 Office Treatment of Rectal Diseases. W. Beach, Pittsburg, Pa.
55 Plaster-of-Paris and How to Use It. (To be continued). M. W. Ware, New York.
56 Paranephritic Sclerosis; Its Etiology, Symptoms and Treatment. A. A. Berg, New York.
57 Value of the Roentgen Rays in Surgical Diagnosis. (To be continued.) C. Beck, New York.

51. Excision of Transvere Colon.—Gant's patient suffered from diarrhea, with frequent discharge of bloody mucus due to a chronic ulcerative colo-proctitis. The rectum had been removed and two artificial ani had been made, one in the left and the other in the right inguinal region, without affording relief. Gant removed the last half of the transverse colon, the descending colon and sigmoid, and made an artificial anus below the umbilicus. The other openings were closed and a very satisfactory result was obtained. The colon showed several constrictions, its lumen being narrowed by thickening of the wall of the intestine.

53. Intestinal Anastomosis.—Pleth first unites the serous surfaces of the opposed guts with a running suture of linen thread for a distance of from 7 to 10 cm. This he terms the posterior suture. He then passes an ordinary knitting needle through the gut wall about 1 cm. from the posterior suture, causing it to traverse the lumen of the gut for a distance less than the length of the posterior suture, emerging again on the serous surface. The two needles are brought together, laid parallel, and a straight needle armed with strong silk (or silkworm gut) passes back and forth through the opposite gut walls in such a way that the suture always runs under the needle, the stitches being taken close together. The small bridge of gut wall which overlies the needles is burned or scraped away and the needles are removed. The posterior suture is now continued in the serosa in such a manner as completely to bury the two openings in the opposed gut sections. If desired, another interrupted or continuous serosa-serosa suture may be added. The silk suture is now withdrawn and the anastomosis is completed.

Bulletin of the Johns Hopkins Hospital, Baltimore.

June.

58 *Two Cases of Stricture of the Ureter; Two Cases of Hydro-Nephrotic Renal Pelvis Successfully Treated by Plication. H. A. Kelly, Baltimore.
59 Use of Quinin During the Civil War. J. W. Churchman, Baltimore.
60 *Importance of a Microscopic Examination of All Growths Removed from the Nares, Together with a Report of Early Diagnoses of Malignant Growths. S. Rosenheim, Baltimore.
61 *An Experimental Study on the Recurrence of Lymphatic Glands and the Regeneration of Lymphatic Vessels in the Dog. A. W. Meyer, Baltimore.

58. Stricture of Ureter.—Kelly reports two cases successfully treated. In the first case the stricture was located at the vesical opening and the ureter was distended into a small cyst from which the urine could be observed to flow drop by drop, but at intervals the cyst became greatly distended and the flow of urine became greater. Incision of the opening with delicate scissors resulted in cure. In the second case the stricture was situated near the pelvis of the kidney and was treated by opening the kidney pelvis and dilating the stricture by passing a small metal catheter. The incision in the pelvis was then closed and the patient made a good recovery. The author also reports two cases of hydronephrosis treated by plication of the pelvis of the kidney.

60. Diagnosis of Malignant Growths in the Nose.—The importance of a microscopic examination of all growths removed from the nares is emphasized by Rosenheim. Especially in case of malignant growths is this to be desired because they can be discovered at a time when, on account of their small size, they can be removed by the nasal route; and if this is not feasible a radical operation can be done, at a time when there is the greatest possibility of a cure. Moreover, knowing the nature of the growth removed, we are on the watch for recurrences and are prepared to treat them vigorously. Six cases are reported, three of sarcoma and the other three showing the initial stage of carcinoma or a tendency thereto.

61. Regeneration of Lymphatic Vessels and Glands.—Meyer has tried to solve by experimental methods the problem of whether or not the lymphatic vessels and glands regenerate. The evidence, so far as the larger vessels and the glands are concerned, appears to be negative. The possibility of the formation of lymphatic capillaries in granulation tissue for the present must be left undecided, as no conclusive experimental evidence on the subject has been produced. The possibility of regeneration of glands in very young animals must be omitted, but it is probable that the glands found in older animals or in man after operations arise from the enlargement of already existing structures. The author has found that it is very difficult to recognize the smallest glands with the naked eye.

Interstate Medical Journal, St. Louis, Mo.

June.

62 Gross Abnormalities of the Appendix Vermiformis. A. P. Heineck, Chicago.
63 *Talma's Operation for Cirrhosis of the Liver. E. Smith and N. B. Carson, St. Louis.
64 Criminal Abortion. J. M. Grant, St. Louis.
65 Massage in Neuroses. J. F. Menestrina, St. Louis.

63. Talma's Operation.—Smith and Carson report a case successfully treated by this method. The statistics of the operation seem to indicate a mortality of from 40 to 60 per cent. against an almost certain fatal result by the ordinary expectant methods.

Pennsylvania Medical Journal, Athens.

May.

66 *Technic Employed in the Last One Hundred Laparotomies with the View of Restricting the Employment of Drainage. L. J. Hammond, Philadelphia.
67 Appendicitis Treatment of General Septic Peritonitis. C. H. Ott, Sayre.
68 *Treatment of Pus Cases in Abdominal Work. R. Burns, Scranton.
69 Hysteria Simulating Brain Tumor. T. H. Welsenburg, Philadelphia.
70 Case of Acute Myelitis Ending in Recovery. H. B. Allyn, Philadelphia.
71 Statistical Study of Appendicitis. G. D. Nutt, Williamsport.
72 Ocular Manifestations. F. C. Stahlman, Charlerol.

66 and 68.—See abstract in THE JOURNAL, Nov. 4, 1905, page 1438.

Journal of the Association of Military Surgeons of the United States, Carlisle, Pa.

June.

73 First Aid on the Battlefield. N. Senn.
74 Beriberi or Alcoholic Neuritis? J. S. Taylor, U. S. N.
75 Beriberi and Dhobie Itch. Few Remarks on Their Etiology and Treatment. J. M. Purnell, U. S. N.
76 Brief Sketch of the Evolution of the Medical Service of the British Army. W. J. R. Rainsford, Bermuda.
77 Organization for Instruction in Colonial Medicine. M. le Dr. Brouardel and M. le Dr. Wurtz, Paris.

The Journal of Infectious Diseases, Chicago.

May 18.

78 Two Cases of Relapsing Fever; the Occurrence of this Disease Throughout the World at the Present Day. R. J. Carlisle, New York.
79 Study of a Spirochete Obtained from a Case of Relapsing Fever in Man, with Notes on Morphology, Animal Reactions, and Attempts at Cultivation. C. Norris, A. W. Pappenheimer and T. Flournoy, New York.
80 Studies on Spirillum Obermeieri and Related Organisms. F. G. Novy and R. E. Knapp, Ann Arbor, Mich.
81 Trypanosomes of Tsetse Flies. F. G. Novy, Ann Arbor.
82 Methylene Violet and Methylene Azure. W. J. MacNeal, Ann Arbor.
83 Are Opsonins Distinct from Other Antibodies? L. Hektoen, Chicago.
84 Observations on Phagocytosis of Diphtheria Bacilli. H. A. Reque, Chicago.
85 Latent Pneumococcemia. H. E. Wolf, Chicago.
86 Etiology and Diagnosis of Hydrophobia. A. W. Williams and M. M. Lowden, New York.

The American Journal of Urology, New York.

June.

87 Operative Treatment of Prostatic Hypertrophy. W. N. Wishard, Indianapolis.
88 Symptomatology of Chronic Hypertrophy of the Prostate. F. R. Sturgis, New York.
89 Pathology of Prostatic Hypertrophy. W. S. Reynolds, New York.
90 Physical Examination in Prostatic Hypertrophy. E. L. Keyes, Jr., New York.
91 Limitations of the Catheter in Prostatic Hypertrophy. H. Goldenberg, New York.
92 Conditions in which the Bottini Operation is Indicated in the Operative Treatment of Prostatic Hypertrophy. W. Meyer, New York.
93 Urine in Prostatic Hypertrophy. L. Heitzmann, New York.

Louisville Monthly Journal of Medicine and Surgery.

June.

94 Puerperal Eclampsia. H. E. Tuley, Louisville.
95 Hyperemesis Gravidarum—Toxemia of Pregnancy. B. A. Allan, Louisville.
96 Pneumonia—Its Prognosis and Prevention. S. J. Meyers, Louisville.
97 The Time Factor in Appendicitis. J. B. Bullitt, Louisville.
98 Plea for Simple Life and Unity for the Doctor. B. C. Frazier, Louisville.

Mississippi Medical Monthly, Vicksburg, Miss.

June.

99 Pneumonia and Its Treatment. L. D. Harrison, Clarksdale.
100 Lobar Pneumonia. S. P. Klotz, Summit.
101 The Hypertrophied Tonsil. A. G. Payne, Greenville.
102 Medical Ethics. J. T. B. Berry, Brandon.

The Journal of Cutaneous Diseases, New York.

June.

103 Erythema Perstans. G. W. Wende, New York.
104 Case of Chronic Ulcerations in the Pubic and Inguinal Regions. S. Pollitzer, New York.
105 Intramuscular Injections in the Treatment of Syphilis and the Use of the Sozoiodolate of Mercury. (To be continued). A. Garceau, San Francisco.
106 Two Cases of Larva Migrans, with Special Reference to the Treatment. M. B. Hutchins, Atlanta, Ga.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

May 26.

1 *Early Conditions of Cancer of the Tongue. H. T. Butlin.
2 Early Recognition of Cancer of the Breast. G. L. Cheatle.
3 *Propagated Cancer. E. F. Bashford.
4 Radical Operation for Cancer of the Lower Lip. J. Hutchinson.
5 Secondary (Metastatic) Carcinoma of the Ovaries. J. Bland-Sutton.
6 *Surgery of Sarcoma in Kashmir. A. Neve.
7 *Color of the Hair in Ovarian Dermoids. S. G. Shattock.

1. Cancer of the Tongue.—Butlin says that formerly he divided cancerous lesions of the tongue into three stages: 1, Predisposing conditions, such as leucoplakin, ichthyosis and glossitis; 2, precancerous conditions, such as warty growths, thick plaques and sore places which are not actually cancerous, but which inevitably proceed to cancer unless they are completely removed or destroyed; 3, actual cancer. Recent experience, however, has taught him that many of the conditions in groups 1 and 2 are examples of actually developed cancer in its early stages. He describes 7 cases in which the cancer was found under the following forms: 1. A flat, very slightly raised, smooth, red glazed plaque, feeling like a thin piece of gristle in the surface of the tongue, not thicker than a 10-cent piece, and looking and feeling just like a primary hard sore. 2. A white warty growth, not ulcerated, and scarcely indurated at its base. 3. A slight thickening and hardening of an old leucoplakic area, rather distinguishable to feel than sight. 4. A nodular plaque, red and commencing to ulcerate, with drawing-in of the surrounding tissues.

3. Propagation of Cancer.—Bashford illustrates the facts demonstrated by recent experiments on the propagation of cancer in animals. He calls attention to the fact that the first stages of the disease may exist without the production of symptoms. A small piece of mouse cancer transplanted into the subcutaneous tissue, if it grows, ultimately gives rise to a mass of new growth nearly as great as the mouse itself. It produces metastases in the lungs, and leads to the death of the animal. If the tumor be removed by operation, when it has reached the size of an almond, these results do not follow. The mouse remains well indefinitely, although the tumor transplanted into other mice continues to grow. In the same way in the human subject carcinoma and sarcoma are at first local processes taking place in circumscribed areas; their complete removal prevents the further extension of the disease. In this early state, however, the anatomic and histologic lesion constitutes the most reliable criterion of the presence of cancer; symptoms are absent and the removal of a piece of tissue, which can not be shown to be cancerous, or ultimately proves to be non-cancerous, is to be preferred to delay until the naked-eye appearances have raised suspicion to probability. He asks: Are not the consequences of the growth of a small piece of mouse cancer no bigger than the head of a pin sufficient to convince the most skeptical of the justice of this attitude?

6. Surgery of Sarcoma.—Neve analyzes the results of removal of sarcomatous growths in the Church Mission Hospital, Kashmir. One hundred and eighty-four growths have been operated on. Of the patients, 80 per cent. were males. The mean age is 40, the ages varying from 5 to 70. Thirty-six per cent. of the tumors were of less than one year's growth. In 2 cases the whole scapula was excised. Many tumors from the flank, abdominal wall or lumbar region were very extensive, and of these few appear to have recurred. Altogether 11 exploratory operations were done; in 12 others the removal was incomplete. In 16 cases there was recurrence, and in 10 others it was doubtful whether extirpation was complete. Three patients died in the hospital or soon after leaving. The remaining 132 are regarded as probably cured, which gives 70 per cent. of successful cases.

7. Color of Hair in Ovarian Dermoid.—Shattock believes that ovarian dermoids arise not from a strict parthenogenesis, but from a fertilization of the primordial ova by surplus spermatozoa enclosed in the ovum at the time of conception. In this way he would account for the color of the hair in ovarian dermoids differing from that of the woman bearing the parasite.

The Lancet, London.

May 26.

8 How the Fight Against Tuberculosis Now Stands. R. Koch.
9 Preservation of Health Among the Personnel of the Japanese Army and Navy. B. Takaki.
10 Autointoxication; Its Relation to Certain Disturbances of Blood Pressure. H. B. Shaw.
11 *Hematoma of the Ovary and Certain Other Closely Allied Conditions. H. W. Wilson.
12 *Hemorrhagic Purpura During Convalescence from Scarlet Fever. A. G. Banks.
13 *Immediate Treatment of Extensive Wounds on Field Service. C. A. Gill.

11. Hematoma of the Ovary.—Wilson divides hematoma of the ovary as follows: 1. A group of cases designated as idiopathic. 2. Those due to torsion of the pedicle of the ovary causing obstruction to the venous return. There are three main causes of this: (a) hernia of the ovary; (b) rotation of a slightly enlarged ovary causing twisting of the broad ligament, and (c) the presence of some abnormal predisposing condition in the pelvis—e. g., a broad ligament cyst, the actual twist being brought about by some sudden muscular movement or strain, perhaps associated with a distended bladder. This last variety is analogous to torsion of the testicle seen in cases of imperfect descent. 3. Toxic conditions causing punctiform or more extensive hemorrhage: (a) some of the acute specified fevers—viz., scarlet fever or enteric fever; (b) profound septic intoxication—viz., general peritonitis or puerperal sepsis. It is also seen sometimes postmortem in fatal cases of perforated gastric or duodenal ulcers. 4. Ovarian pregnancy.

Wilson gives the history of 8 cases representing the first and second classes. The greatest interest is attached to the first class. It occurs particularly in young patients and is mostly due to hemorrhage into the cavity of a ruptured Graafian follicle. It is likely to occur at the time of a menstrual period and presents two cardinal symptoms: abdominal pain and uterine hemorrhage. The pain, tenderness and abdominal rigidity may suggest perforating gastric or duodenal ulcer or appendicitis. In certain cases it has been mistaken for ovarian pregnancy. Diagnosis is very difficult before opening the abdomen, and the condition may be overlooked even then if attention has not been directed to its possibility.

12. Purpura Hemorrhagica in Scarlatina.—Banks describes a case of hemorrhagic purpura coming on during convalescence from scarlatina and characterized by hematemesis and the occurrence of large petechiæ over the elbows. Under morphin and calcium chlorid the patient, a man, made a good recovery. Albumin appeared in the urine coincident with the purpura, and continued in small quantity until his discharge. The author suggests that the hemorrhagic tendency is due to the same influences which produce nephritis in scarlatina.

13. Immediate Treatment of Wounds.—Gill, in considering the immediate treatment of extensive injuries on field service, emphasizes the following points: 1. The immediate application of an antiseptic lotion to large wounds. 2. To provide the necessary antiseptic the addition of tabloids of perchlorid of mercury to the first field dressing packet is suggested. 3. Following the first dressing a period of rest may be allowed, which is highly convenient to the medical staff and conducive to the well-being of the patient. 4. Removal by

ambulance transport to field hospital, where operation may be undertaken on a patient whose vital powers have largely recovered from the shock consequent on his wounds.

Indian Medical Gazette, Calcutta.

May.

14 *Early Occurrence of Adipocere. J. C. Vaughan.
15 Operations for Cataract. R. H. Elliot.
16 *Beriberi in Sylhet Jail. E. A. W. Hall.
17 Surgery of Sarcomata. A. Neve.
18 Season and Some Diseases in Madras. J. W. Cornwall.

14. **Early Occurrence of Adipocere.**—Vaughan calls attention to the fact that while it is ordinarily believed that a considerable time is necessary for the formation of adipocere, five weeks being the shortest in time in any authentic account, yet it is admitted by Taylor that there is no doubt that the process may take place partially in the dead body within a much shorter period. Vaughan cites 5 cases in which this change had occurred in from two to four days. In 4 of these cases the body had not been buried.

16. **Beriberi.**—Hall discusses the various theories to account for the occurrence of beriberi. In the cases occurring in Sylhet jail, 158 in number, with a mortality of 13.3 per cent., the rice theory is not applicable, as the rice was freshly husked and never more than two days old. In favor of the place theory are: 1. The epidemic affected certain groups of inhabitants of the jail working in definite places and did not affect the other groups to whom the same food and water were supplied. 2. When the prisoners were removed to camps the disease stopped, although they continued to get the same food and water as they had in jail. The theory of the propagation of the disease by bedbugs receives some support from the fact that the bedding of the patients was infested by these vermin, but, on the other hand, the same bedding was issued indiscriminately to the three groups, and when moved to camp the same bedding was used, and for the sick the same wooden beds, yet the epidemic ceased. The author considers that the place theory is the most important and believes that the infection lies in the floor of the building and is inhaled through the mouth and nose; and that the bacillus first lodges in the fauces, producing the faucial redness and tenderness which is so common a symptom in the disease, and passes thence to the stomach and duodenum.

The Australasian Medical Gazette, Sydney.

April 20.

19 President's Address of New South Wales Branch of British Medical Association. J. L. Beeston.
20 *Operative Treatment of Enlarged Prostate. H. L. Maitland.
21 Cases of Infantile Scurvy. H. Swift.
22 *Typhoid Fever in New South Wales, 1898-1904. R. J. Millard.
23 Two Cases of Hydramnios. A. A. Lendon.
24 *Case of Myasthenia Gravis in Special Relation to Eye and Throat Conditions. G. H. Hogg.
25 Treatment of Cerebral Hemorrhage. J. E. F. McDonald.
26 Fatal Case of Formalin Poisoning. A. Palmer.

20. **Operative Treatment of Enlarged Prostate.**—Maitland summarizes his paper as follows: 1. Clinically there are two forms of enlargement—the soft or adenomatous and the hard or fibrous, but there are many gradations between the two varieties. 2. The operative treatment of the soft variety is by enucleation, preferably by the perineal route. 3. The operative treatment of the hard variety is by cauterization through a median perineal incision. 4. A median perineal section should be the first step in any operative measure on the enlarged prostate. 5. If suprapubic enucleation be performed the perineal section lessens the risk, since it provides the necessary drainage. 6. It is necessary to explore the prostate digitally before being able to decide on the proper operative measure.

22. **Typhoid Fever.**—Millard concludes his paper as follows: 1. Typhoid has very regular recurring seasonal variations agreeing with those of infantile diarrhea, which corresponds closely to those observed in other parts of the globe. 2. The typhoid bacillus is dependent for its dissemination in some way on external conditions, as exemplified in the difference between the incidence rates of the coast and inland districts. 3. The infection of water supplies has not been an important factor in spreading typhoid fever in New South Wales. 4. Infection from a previous case, either directly in the sick room or indirectly from excreta imperfectly disinfected or improperly disposed of, has been a factor of great importance. From this it results that the two essentials in dealing with any outbreak are: 1, To isolate the sick, and 2, to disinfect their excreta.

24. **Myasthenia Gravis.**—Paralysis of the soft palate was first noticed in Hogg's case following a sore throat and suggesting diphtheritic paralysis; it varied much in degree, but continued until the end. Paresis of acommodation of the eye was noticed early; it disappeared in a week or two, returning at a much later stage. Other inconstant paralyses of the eye muscles were ptosis of right side, paresis of right external rectus, and paresis of corrugator supercilli. The pupil reaction, vision for form and color, the field of vision and the fundus were normal. Paralysis of the pharyngeal muscles and probably of the epiglottis varying much in degree were observed; also paresis of the abductors and tensors of the vocal cords. The tongue became affected toward the last so that it could not be protruded from the mouth. The continual remissions and exacerbations in the symptoms were striking. The symptoms were all increased at the menstrual period which was followed by a temporary amelioration. Fatigue seemed to increase the paralysis which was usually worse toward evening. Treatment was without avail. Tubal feeding gave rise to most alarming symptoms of dyspnea and faintness. The pathology of the disease and especially the "lymphorrhages" of Buzzard, collections of small cells resembling lymphocytes between the fibers of muscles or between the cells of a glandular organ, are described.

Presse Médicale, Paris.

27 (XIV, No. 33.) La rétention de l'urée. G. Paisseau.
28 (No 39.) *Tardy Death from Chloroform.—La mort tardive par le chloroforme. Tuffier, Mauté and Aubertin.
29 *When Should Bromids be Prescribed in Nervous Affections?—Quand doit-on prescrire les bromures aux neuropathes? P. Hartenberg.
30 (No. 40.) L'amyotrophie à type lombo-pelvi-femoral. Raymond and G. Guillain.
31 *Action du régime achloruré sur les variations de poids au cours de la scarlatine ("salt starvation" in scarlet fever). H. Pater.

28. **Delayed Poisoning from Chloroform.**—In THE JOURNAL for Sept. 9, 1905, the occurrence of a tardy hepatic toxemia as the result of chloroform anesthesia was discussed both editorially and in an exhaustive monograph by Bevan and Favill. In the current volume, page 341, West offers an explanation for the delayed poisoning. Tuffier, Mauté and Aubertin here report 2 new cases, demonstrating anew that chloroform accumulating in the organism is liable to induce a subacute hepatitis possibly fatal. The symptoms began in each case about thirty-six hours after the salpingectomy or abdominal hysterectomy, the patients exhibiting prostration and delirium with dilatation of the pupils, weakness, rapid pulse, normal temperature, incessant vomiting, at first bilious, then blood-stained, with subicterus, but no peritoneal reaction or leucocytosis, and the blood sterile. A distinct, constant odor of chloroform in the breath was most significant. Within three days the symptoms gradually subsided to complete recovery in one patient, but progressed in the other to fatal coma. They quote extensively from the articles in THE JOURNAL mentioned above, their conclusions harmonizing with those published. They state that there is now a total of 50 such cases on record, more than half being in children. They ascribe the trouble to an individual defective elimination of the chloroform. The organs retain it for some mysterious reason, and, as the anesthetic continues to exert its injurious action so long as it is in the body, the patient feels the effect the same as if he were being subjected to a constant succession of general anesthesias. They base this assumption on the constant odor of chloroform in the breath during the entire course of the symptoms. Guthrie mentions that the nerve centers smelled strongly of chloroform in a case that came to dissection. These facts emphasize the danger of repeating a chloroform anesthesia before the organs have had time to recover from the effects of the first. Administration of oxygen seems theoretically indicated. The evidences of this delayed poisoning from chloroform aid in restricting the already diminishing number of cases of "operative shock."

29. **When Should Bromids Be Prescribed in Nervous Affections?**—Hartenberg declares that the bromids should be or-

dered in case of nervous affections when there is agitation, excitement, palpitations, spasms, angor, etc., on condition that the nourishment of the general system and of the nerves is satisfactory. Whenever there is fundamental nutritional disturbance it is wisest to refrain altogether from the bromids. Ready fatigue, exhaustion, muscular hypotonicity, arterial hypotension, etc., point to nutritional disturbance, and analysis of the urine will determine the exact state of the nutritional exchanges. If the system needs to be built up, then the bromids are contraindicated, except in epilepsy. He gives them in the form of a cachet at the middle of the meals.

31. **Reduction of Salt in Diet in Scarlet Fever.**—Pater reports the results of salt starvation in 15 cases of scarlet fever. They demonstrate beyond question, he thinks, that this method of treating scarlet fever is absolutely simple and harmless, while it protects against complications, especially on the part of the kidneys. He found that in his cases the course of the disease was shorter than usual, convalescence commencing earlier. If albuminuria was noted at first it subsided as salt was dispensed with. Dopter has also reported similarly favorable experiences, all tendency to nephritis being apparently averted.

Semaine Médicale, Paris.

32 (XXVI, No. 21.) Revision de la question de l'aphasie: la troisième circonvolution frontale gauche ne joue aucun rôle spécial dans la fonction du langage (third convolution has no special rôle in speech). P. Marie. 10 illustrations.

Beitraege z. Geb. und Gynäkologie, Hegar's, Leipsic.

Last indexed XLIII, page 1507.

33 (IX, No. 2.) Abdominelle und vaginale Exstirpation des karzinomatösen Uterus. A. Döderlein.
34 Vollkommene Neubildung des Blasenverschlusses und der Harnröhre. Urethrosphincteroplastik. H. Sellheim.
35 Manual Investigation of the Pelvis and Exact Measurements. Limits for Spontaneous Birth with Contracted Pelvis.—Zur Lehre vom engen Becken. Id.
36 Hydromeningocele sacralis anterior. F. v. Neugebauer (Warsaw).
37 (No. 3.) Kasuistik zur Hypertrichosis universalis acquisita mit Veränderungen der Sexual-Organe. Albertl.
38 Ueber Gravidität in der verschlossenen Hälfte eines Uterus bilocularis. J. Werner.
39 Zur Histologie des Breusschen subchorialen Hämatoms. O. Frankl.
40 Ueber multiples primäres Vulva-Karzinom. Fromme.
41 *Influence of Food of Mother Animals on Development of Fetus.—Einfluss der Ernährung der Muttertiere auf die Entwicklung ihrer Früchte. M. Reeb.
42 Extended Freund Operation for Uterine Cancer and Surgery of the Ureters.—Erweiterte Freundsche Operation des Gebärmutterkrebses und Ureteren Chirurgie. H. Sellheim.
43 *Klinische und experimentelle Versuche über postoperativen Ileus. K. Baisch.
44 Die Angiome der menschlichen Plazenta. G. Schickele.
45 Eine teratoide Mischgeschwulst des Uterus. M. Penkert.
46 To Enhance Resisting Powers by Artificially Induced Leucocytosis.—Zur Steigerung der Widerstandskraft des Organismus durch künstliche Leukozytose. Pankow.

41. **Influence of Food of Mother Animals on Development of Fetus.**—Reeb found that Nature produces less substance when the mother is insufficiently fed, but that the elements harmonize in the proper proportions. The maternal organism seems to be drawn on for the lacking elements.

43. **Postoperative Ileus.**—Baisch has studied this subject exhaustively on animals and in the clinic. The prognosis is so grave that the first symptoms of obstruction should sound the alarm. His experience indicates that the presence of blood is the principal factor in the production of adhesions. When the operation is bloodless adhesions do not develop. It is not a mere coincidence that Zweifel, who is the most vehement advocate of "blood dry" operating, has had postoperative ileus in only 2 out of 800 laparotomies, and in these adhesions had been found when the abdomen was first opened. The only means of preventing the formation of adhesions and of breaking up those forming are to place the intestines in their normal position, to stimulate peristalsis early, to refrain from cleaning out the intestines too thoroughly before the operation, and to banish opium from the preliminary and after-treatment. Peristalsis may be stimulated by an enema the second day after the operation and by magnesia or castor oil early the third day and after. If neither flatus nor stools have passed by the fourth day, all food and drink by the mouth should be suspended, and the intestines should be flushed. If there is much vomiting the stomach should be rinsed. He has never found atropin effectual, but advises pouring castor oil into the stomach (50 gm.) as a last resort. If this does not give relief, the situation becomes critical, and after the fifth day—watching the pulse—the necessity for a secondary laparotomy must be considered. The pulse reveals approaching improvement. If it becomes stronger and slower, less tense, this sometimes announces the overcoming of the obstacle before stools and flatus appear. If the pulse grows smaller and faster, waste no more time on symptomatic measures. Do not be deceived by the appearance of a few scybala in the enema water. One patient succumbed on the ninth day, although some feces had appeared in a high enema given the sixth day. The autopsy revealed adhesions and perforation of a gangrenous loop in the small intestine in the small pelvis. The obstacle is generally in the small pelvis, even after a laparotomy. Vaginal intervention will frequently relieve without the necessity for opening the abdomen again. In 4 cases he cured the ileus by placing the patient in the lithotomy position and reopening the colpotomy wound with his finger. The entire small pelvis was then examined, and loops of intestine found adherent were stroked free and lifted. A pad of gauze in the Douglas cul-de-sac keeps the intestines from sliding down. Afterward a high injection is given and the abdomen cautiously massaged. Anesthetics are not required. Thirteen patients were cured by a second laparotomy. In 3 a fecal fistula persisted for a time, but finally healed. The healing proceeded most smoothly when the intestine had been emptied by means of a trocar, but even then there was generally suppuration at one or more points.

Beiträge zur Klinik der Tuberkulose, Würzburg.

47 (V, No. 1.) *Ueber die klinische Bedeutung der Ehrlichschen Diazo-Reaktion bei Lungen-Tuberkulose. F. Junker.
48 *Die Lösungsverhältnisse bei Pneumonia fibrinosa und Pneumonia tuberculosa sive caseosa (conditions of resolution). V. Schläpfer.
49 Cyklischer Verlauf bei Lungen-Tuberkulose. G. Heimann.
50 Sporadischer Skorbut als Komplikation einer "tumor-artigen Coekal-Tuberkulose." Bickhardt.
51 Streitfragen in der Lehre vom Fieber der chronischen Lungen-Tuberkulose. G. Schröder.
52 (No. 2.) *Wie breitet sich die Genital-Tuberkulose aus? ("Ascension" und "Descension.") O. R. Teutschlaender.
53 *Ueber suggestive Temperatur-Steigerungen bei Tuberkulösen. P. Lorenz.
54 Fall von congenitaler Tuberkulose. Diagnose der Tuberkulose im frühesten Kindesalter (in infancy). F. Hamburger.
55 *Spread of Tuberculosis by Way of the Lymph.—Verbreitung der Tub. den Lymphgebieten entlang. Haentjens (Putten, Holland).
56 (No. 3.) *Experimentelle Uebertragung der Tuberkulose vom Menschen auf das Rind (transmission from man to cattle). A. Eber.
57 Alkohol und Tuberkulose. G. Liebe.
58 *Ueber Anwendung von Inhalationen in der Phthiseotherapie. T. Brühl.
59 *Process for Obtaining Germ-free and Practically Unmodified Cow's Milk.—Verfahren zur Gewinnung einer von lebenden Tuberkelbazillen und anderen lebensfähigen Keimen freien, in ihren genuinen Eigenschaften im wesentlich unveränderten Kuhmilch. H. Much and P. H. Römer.
60 *Beziehungen zwischen der Tuberkulose und Gravidität, Geburt und Puerperium. W. Weinberg (Stuttgart).
61 Ueber 25 mit Marmorek's Serum behandelten Fälle von Tuberkulose. S. Röver.
62 Sympathikus-Affektionen bei Lungen-Tuberkulose (Hemihidrosis capitis). F. Köhler.
63 Eine seltene Aetiologie der Lungen-Tuberkulose. F. Köhler.

47. **Diazo Reaction in Tuberculosis.**—Junker remarks that the results of the diazo test are too inconstant for it to be of much value in early diagnosis. When the findings are constant the physical signs are generally unmistakable.

48. **Resolution in Pneumonia.**—Schläpfer's researches have demonstrated that the resolution and absorption of pneumonic processes and their relics are governed by the tension of the oxygen in the dead tissues. As this is in turn regulated by the condition of the vessels, the final outcome of the process depends on the extent to which the vessels have been injured by the disease. These facts suggest the usefulness of oxygen as a therapeutic measure and of drugs to act on the heart and vessels. The tubercle bacillus finds a favorable soil in the relics of pneumonic processes, and it has further an additionally injurious action on the blood vessels. The benefit of iodin preparations in tuberculous processes may be due to the special action of iodin on the blood vessels. Passive congestion according to Bier may also owe its efficacy to its activation of the blood, including livelier oxidation. It is possible, Schläpfer thinks, that the Bier method might be applied successfully to the internal organs. Tuberculous pneumonia

seems to indicate such treatment, and here, as also in croupous pneumonia, more active treatment seems to promise better results than the hitherto more expectant measures.

52. **Genital Tuberculosis.**—This article fills 100 pages and is the concluding portion of a monograph on tuberculosis of the seminal vesicles. The practical conclusions for the clinician are that a tuberculous process in the genital organs, and especially in the seminal vesicles—contrary to the experience with the more common tuberculous processes in the lungs, intestines, bones and glands—very frequently runs a latent course, and yet is a constant source of danger for the bearer. In all cases of tuberculosis or suspicion of the disease the entire genital apparatus should be investigated, not omitting the seminal vesicles. As the genital apparatus may become infected from the urinary system, the urine should be examined occasionally for tubercle bacilli. Also every discharge from the urethra, even when there is nothing to suggest tuberculosis, should be examined now and then for tubercle bacilli. The tuberculous process displays a tendency to spread along the natural passages, either up or down, and to induce a total affection of the apparatus involved.

53. **Rise of Temperature from Suggestion in the Tuberculous.**—Lorenz relates his experiences with a number of tuberculous patients who were given sham injections of tuberculin. His tables show an almost regular increase in temperature after a sham injection in 44 out of 200 persons tested. The excitement and the suggestion send the temperature up, although none of the supposed tuberculin was really injected. His experience suggests that it might be wise to test the influence of suggestion in this way before really injecting the tuberculin later. A rise of half a centigrade degree can be accepted as a positive reaction to the tuberculin. It should be computed from the temperature noted after the sham injection, allowing for the rise due to the effects of suggestion. The sham injections were liable not only to send up the temperature, but also to affect the general health. It was noticed sometimes that those patients who had the most pronounced rise of temperature after a series of sham injections failed to show any rise when a genuine injection was given. Another fact noticed was that the suggestive reaction was generally more pronounced when the organism was depressed from any cause, a slight cold or inflammatory process in a tooth or the like.

55. **Spread of Tuberculosis by Way of the Lymph.**—Haentjens has long proclaimed that tuberculosis is primarily an affection of the connective tissue and that it spreads by way of the lymphatic system. He regards this conception as very important, for if the danger for the organism from tuberculosis lies in the connective tissue and its juices, it is here that the battle against the tuberculosis virus must be waged. Proceeding on this assumption, he has been producing a prepared curative serum by inoculating animals with specific tuberculosis virus obtained from the blood-forming tissues and bone marrow, thymus juice, spleen extract and lymph. His serum displays both preventive and curative properties. He is preparing a detailed report for publication later.

56. **Transmission of Human Tuberculosis to Cattle.**—In Eber's experiments tuberculous products from the mesenteric glands of children injected into cattle caused virulent tuberculous processes in many instances, although not constantly.

58. **Inhalation Treatment of Tuberculosis.**—Brühl's study of this subject concludes with the statement that it is impossible to exert a direct therapeutic influence on pulmonary processes by means of inhalations. They do no good and are liable to affect the diseased lung injuriously. On the other hand, applied judiciously and at the proper time, they may be very beneficial in treatment of the upper air passages and in catarrh of the large bronchi.

59. **Process for Obtaining Practically Unmodified Cow's Milk Free from Living Germs.**—This communication issues from von Behring's institute at Marburg. It describes the process by which cow's milk is said to be absolutely freed from living germs without altering its taste or modifying its properties. Hydrogen dioxid is added to the milk at once, and after a few hours a ferment is added which destroys the hydrogen dioxid. The milk is rendered absolutely sterile by the dioxid, while neither the dioxid nor the ferment alter its properties in any way. The hydrogen dioxid is placed in the sterile empty milk can and the milk is milked into it. The proportion is 1 to 1,000. The milk is then set aside for from six to eight hours and is then warmed to 52 C. for an hour, after which the ferment is added in the proportion of 0.5 or 1 gm. to the liter. The ferment used is derived from beef blood, with the hemoglobin removed, producing a powerful catalytic ferment, which has a special destructive action on hydrogen dioxid. It was first described by Senter in the *Zeit. f. physik. Chemie.*, vol. 44, who then called attention to its specific action on hydrogen dioxid. He gave it the name of "hilmase." It is a yellowish fluid containing 1 or 2 per thousand albumin, which is, of course, a homologous protein with the albumin of cow's milk. The destruction of the hydrogen dioxid in the milk is facilitated by frequent shaking of the vessel. Two hours suffice as a rule. The milk is then ready for use, and when protected from the light keeps fresh for days. The name of "perhydrase milk" has been given to milk thus prepared. The taste is identical with that of pure fresh milk. No germs can be cultivated from it even after twenty-one days. Inoculation of guinea-pigs and mice always resulted negatively even after enormous amounts of tubercle bacilli had been added to the milk with the hydrogen dioxid. Defibrinated beef blood might be used, it is stated, instead of the prepared ferment. The proportion should be 1 c.c. of the defibrinated blood to 1 liter of 1 to 1,000 hydrogen dioxid milk. The warming of the milk might also be dispensed with. The same process may also be found useful for disinfection of drinking water. Experiments in this line are now under way.

60. **Tuberculosis in Relation to Child-bearing.**—Weinberg thinks that the influence of pregnancy on tuberculosis has been exaggerated. He presents statistics to show that the death rate in the year following childbirth is no higher among the tuberculous than among other women. The pregnancy is frequently interrupted by spontaneous abortion or premature delivery. Weakly and tuberculous young women should be advised not to marry. The course of tuberculosis in a pregnancy is not invariably unfavorable, and the disease does not develop with any striking frequency during a pregnancy. Hemoptysis is not especially frequent during the puerperium.

Berliner klinische Wochenschrift.

64 (XLIII, No. 11.) Untersuchungen ueber die "Autotoxine" (Conradi) und ihre Bedeutung als Ursache der Wachstumshemmung in Bakterienkulturen (autotoxin inhibition of growth of bacteria). Manteufel.
65 *Zur Kenntnis der Hernia uteri inguinalis. H. Hilgenreiner.
66 *Zur Kenntnis der Virulenz der Tuberkelbacillen. A. Marmorek.
67 *Physical Measures in Treating Acute Articular Rheumatism.—Die Anwendung der physikalischen Heilmethoden in der Therapie des acuten Gelenkrheumatismus. A. Laqueur.
68 (No. 12.) *Einige kritische Bemerkungen zur Alexander-Adams'schen Operation, insbesondere ueber ihr Verhältnis zu den Leistenbrüchen (relation to inguinal hernia). G. Schickele.
69 Ueber Vorkommen und Aetiologie einseitiger Trommelschlägelfinger (clubbed finger). M. Bernhardt.
70 Temperatur-Messung in electrischen Licht-Bädern (light baths). Uhlich.
71 Ueber eine Verbesserung des Mett'schen Verfahrens zur Bestimmung der verdauenden Kraft von Flüssigkeiten (improved technic for Mett's test of digesting power of fluids). H. Meier.
72 Die quaternären Alkaloid-Basen in der Therapie. A. Schutze.
73 Ueber das Winterklima und einige hygienische Einrichtungen Ægyptens. M. Kirschner. (Concluded.)
74 Ueber neue Inhalations-Methoden und neue Inhalations-Apparate. T. Heryng (Warsaw). (Concluded.)
75 Die Prophylaxe der eitrigen Peritonitis. B. Bosse.

65. **Inguinal Hernia of the Uterus.**—Hilgenreiner reports a case in detail and has collected 39 similar ones in the literature. He gives the details of the last series of 15 cases. In the majority the defect was congenital, and was accompanied by other anomalies. In 4 instances the patients were men and in another a male hermaphrodite. In 8 cases the uterus was pregnant. In the case personally observed the patient suffered from melancholia which subsided completely after the operation. The uterus and right adnexa with some loops of intestines were found in the hernia. They were adherent and, on account of shock, the operation was done in two stages. The psychosis developed during the interval of about nineteen months.

66. **Improved Technic of Experimental Inoculation of Tubercle Bacilli.**—Marmorek states that young cultures are more virulent than those two or three months old. He has also found a difference in the results of inoculation when the bacilli were injected in a fine emulsion or in comparatively large drops. It is also difficult to measure the exact amount injected. In consideration of this difficulty of reproducing always identical conditions in his tests he turned his attention to making the animals more susceptible to the inoculations. He now announces that he has succeeded in this task. He has accomplished this with quinin, which has a paralyzing effect on phagocytosis and thus allows the bacilli to develop unhindered. He injected the bacilli in a 2 per cent. solution of quinin in physiologic salt solution, using white mice for the experiments. By this means the susceptibility of the mice was very much enhanced and the test became much more delicate and reliable.

67. **Physical Measures in Treatment of Acute Articular Rheumatism.**—Laqueur's experience effectually demonstrates that measures to induce artificial hyperemia are valuable adjuvants to the salicylates in treatment of acute articular rheumatism. They can be applied in the form of superheated air or with passive congestion with a constricting band.

68. **Alexander-Adams Operation and Hernia.**—Schickele advises strengthening the anterior wall of the inguinal canal in performing an Alexander-Adams operation. This obviates a tendency to hernia later. The Alexander-Adams operation has been performed in 138 cases at the Strasburg clinic since 1901, and the results are regarded as highly satisfactory. In one instance an old inguinal hernia rendered it difficult to find the round ligament. When found it was sutured between the pillars of the canal, thus preventing any further tendency to hernia.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 1568.

76 (XXXIII, No. 15.) Die Intermediäroperation bei akuter Appendicitis. W. Hagen.
77 Injury of the Greater Process of the Calcaneum.—Zur Kenntnis der traumatischen Fussleiden. H. Ebbinghaus.
78 (No. 16.) *Collective Review of Roentgen Treatment of Surgical and Cutaneous Affections Since March, 1905. Trapp.
79 (No. 18.) *Zur Stauungs-Hyperämie bei akuten Entzündungen (congestive hyperemia in inflammations). E. Lexer.
80 First Dressing on Battle Field.—Der erste Verband auf den Schlachtfelde. Herhold.
81 Zur Technik der Rückenmarksanalgesie (spinal anesthesia). M. Hirsch.

78. **Results of Roentgen Treatment in General During Last Year.**—Trapp summarizes his review in the statement that the last year has materially enlarged and deepened our theoretical knowledge of the mode of action of the Roentgen rays. They have assumed an important place in the treatment of leukemia, of inoperable malignant tumors and of various cutaneous affections scarcely amenable to other measures. The rays have also attained a place in the treatment of goiter and of enlargement of the prostate.

79. **Artificial Hyperemia in Treatment of Acute Inflammations.**—Lexer calls attention to Bier's recent remark that streptococci, for some reason, are rarely encountered in his clinic. They are seldom found as the causal agents of acute inflammations at Bonn. This fact is contrary to the experiences elsewhere, especially at Lexer's clinic at Berlin, where streptococci are the usual germs found in acute inflammations. He suggests that possibly the fine results obtained by Bier with artificial hyperemia and passive congestion may be due to the absence of streptococci. In any event he urges those applying the new technic to investigate the bacteriology of the lesions as this is important for a better knowledge of its effects.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 1569.

82 (XXX, No. 15.) Was Rapid Delivery Indicated in Bossi's Cases?—War in den von Bossi mitgeteilten Fällen (No. 10) eine Schnellentbindung überhaupt notwendig? A. Dührssen.
83 Fall von paterner Leukämie als Ursache des Fruchttodes (as cause of death of fetus). Id.
84 Modification of Infant's Skull by position in which It Habitually Lies.—Zur Entstehung von Brachy- und Dolichocephalie durch willkürliche Beeinflussung des kindlichen Schädels. K. Elsässer.
85 Ein Serie missbildeter Knaben von einem Elternpaar (deformed boys in a family). A. Sippel.
86 *Ein neues Vaginal-Spekulum. M. Seyffert (Dessau).
87 (No. 16.) Zur Ventrifixation des Uterus. H. Sutter.
88 *Zur Aetiologie und Therapie des Gravidität-Erbrechens (vomiting). A. Mueller.
89 *Age at First Menstruation in Sweden.—Die Zeit der Menarche in Schweden. E. Essen-Möller.
90 (No. 17.) Zur Therapie des durch Myoma uteri bedingten Geburts-Hinderusses (obstructing birth). Esch.
91 Vorschlag zur Operativen Sterilisierung des Weibes. G. Friedemann.
92 *Zur Prophylaxe der "Katheter-Cystitis." W. P. Richter.
93 Zweimaliges Vorkommen eines Scheidengewölberisses intra partum bei derselben Person (twice lacerated vaginal vault). J. Saks.

86. **Vaginal Speculum.**—The advantages claimed for this speculum are that as it opens the outer end enlarges too, as well as the tip end. The lumen of the vagina can thus be enlarged evenly throughout its entire length.

88. **Etiology and Treatment of Vomiting of Pregnancy.**—Mueller has been declaring for some time that the cause of the vomiting of pregnancy must be sought in some injury of the sympathetic nerve. The vomiting is a reflex neurosis of this nerve from traction or compression of some of its fibers which have been fastened down by relics of some old inflammation. They are thus unable to yield before the enlarging uterus or the congestion of the parts. The site of this abnormal anchoring of the nerve varies in individual cases. He has sometimes found it in the neighborhood of the solar ganglion, with the posterior wall of the uterus adherent near the promontory on the left. After detaching the adhesions at this point the uncontrollable vomiting has frequently ceased in his experience. Sometimes the benefit derived was only transient, but improvement was again realized by breaking up the adhesions anew. Another point whence the reflex vomiting may originate is the region of the internal os. Inflammation around the back of the uterus, with pathologic anteflexion or immovable retroflexion, especially when combined with induration of the vaginal portion of the cervix, are liable to induce the tendency to vomiting. An exceptionally rigid cervix and very solid attachment of the placenta have been observed in some cases. The irritation must have proceeded in these cases from the cervical ganglia, as treatment directed to the environment of the uterus proved ineffectual. The irritation may proceed in rare cases from adhesion of the omentum. Treatment of the reflex hyperemesis must include the release of adhesions or reduction of the tension in parts hardened by chronic inflammation. Massage, stretching the ligaments, raising or lowering the uterus, tamponing the vagina or cervix or the colpeurynter are among the mechanical measures indicated, while rinsing with hot water, enemas, compresses, sitz baths, and absorbent measures in general should be applied as required, with possibly thiosinamin to aid in loosening inflammatory indurations. These measures must be applied cautiously so as not to induce abortion. Hysteria, neurasthenia and autointoxication from the intestines or liver may be predisposing causes. Vomiting occurring during pregnancy is not always the result of the pregnancy. Autopsy revealed cancerous stricture of the small intestine in one case in his experience. Intestinal intoxication is probably the most frequent co-operating factor.

89. **Age at First Menstruation in Sweden.**—To complete the statistics gathered from various countries, Essen-Möller gives the particulars learned from 5,000 women of various social classes in Sweden. The first menses appeared at the age of 10 in .08 per cent.; at 11 in .74 per cent.; at 12 in 4.44 per cent.; at 13 in 9.3 per cent.; at 14 in 21.1 per cent.; at 15 in 26.38 per cent.; at 16 in 16.6 per cent.; at 17 in 9.98 per cent.; at 18 in 6.48 per cent.; at 19 in 2.8 per cent.; at 20 in 1.68 per cent.; at 21 in .26 per cent.; at 22 in .1 per cent., and at 23 in .06 per cent.

92. **Prevention of Catheter Cystitis.**—Richter uses a catheter not more than 5 mm. in diameter, with small openings with rounded edges. A protecting disc which prevents its entering too far into the bladder is mounted on the catheter 5.75 cm. from the tip. The catheter fits on a metal tube which has an extension at right angles to allow influx of the rinsing fluid

when the stopcock at the junction is turned. It prevents injury of the bladder walls from the catheter while it protects against soiling the bed linen.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

94 (XXXII, No. 16.) *Versuche zur Gewinnung und Wert-Bestimmung eines Meningococcen-Serums. W. Kolle and A. Wassermann.
95 Restdivierende Oculomotorius-Lähmung als Komplikation bei Typhus abdominalis (post-typhoid paralysis). G. Jochmann.
96 *Grundzüge der Behandlung nervöser Sprachstörungen (disturbances in speech). H. Gutzmann.
97 *Zur Frage der Roentgen-Behandlung bei Leukaemie. H. Flesch (Budapest).
98 Lues congenita im Bilde lymphatischer Leukaemie bei einem Neugeborenen (lues simulating leukemia in infant). C. Stuhl.
99 Participation of Internal Ear in Concussions of the Head.—Beteiligung des inneren Ohres nach Kopferschütterungen. Rhese.
100 *Pneumokokken- oder Staunungs- Gangrän? Robbers.
101 (No. 17.) Ueber Expektorantien. H. Elchhorst (Zurich). Clinical lecture.
102 *Der therapeutische Pneumothorax. L. Brauer (Marburg).
103 Behandlung der Blinddarmerkrankungen (affections of cecum). L. Krehl.
104 Ueber das psychische Moment bei der Neurasthenie. R. Wollenberg.
105 Ueber traumatische reflektorische Pupillenstarre (immovable pupils). T. Axenfeld.
106 *Parallel Tests of Gastric Juice and of Blood in Chlorosis.—Parallel laufende Magensaft- und Blutuntersuchungen bei der Chlorose. J. Arneth.
107 *Ueber seltenere Indikationen zur Unterbrechung der Schwangerschaft infolge innerer Krankheiten (interruption of pregnancy in constitutional diseases). M. Hofmeier.
108 Tuberculose und Graviditit. A. Rosthorn and A. Fraenkel.
109 Epithelioma contagiosum (in pigeons). W. Loewenthal.
110 *Action of Iodin on Experimental Necrosis of Arteries.—Wirkung des Iods auf die durch Adrenalin erzeugte Arterionekrose. A. v. Koranyi.
111 Zur Pathologie des periartikulären Fettes am Knie (fat around knee). D. G. Zesas.
112 Mercury Lamps.—Wirkung von Quecksilberdampflampen. T. Schüler.
113 Bicycle and Automobile for Physicians.—Fahrrad und Automobil als Fahrzeuge des praktischen Arztes. Weltzel.
114 *Mental Strain for Children.—Die geistige Ueberbürdung der Kinder. A. Czerny.

94. Antimeningococcus Serum.—This communication issues from the Institute for Infectious Diseases connected with the Berlin University. It completes the reports of previous research on epidemic cerebrospinal meningitis with the announcement of the production of a curative serum. The serum is obtained from horses inoculated with twenty-four hour agar cultures of meningococci from the cerebrospinal fluid of typical cases. Either the living cultures or extracts of the meningococci are injected into a vein or subcutaneously. The specific action of the serum thus obtained was tested in various ways. The findings, especially by the new hemolytic test, were constant and conclusive. Kolle and Wassermann do not hesitate to advise its use in treatment and also in prophylaxis. They recommend a single subcutaneous injection of 10 c.c. as early in the disease as possible. This proportional dose has proved entirely harmless in experiments on animals.

96. Principles of Treatment of Disturbances in Speech.—Among the measures advocated by Gutzmann is reading aloud interesting stories to the child, reading a sentence at a time, quietly and slowly, and making the child repeat the sentence after the reader in the same way. This will almost inevitably cure incipient cases. In the long established ones, the frequent underlying neuropathy requires attention, as also the diet and local lesions.

97. Roentgen Treatment of Leukemia.—Flesch does not believe that Roentgen treatment of leukemia is very promising. More than a transient improvement can not be anticipated, and even this is rare in the lymphoid variety. He gives the particulars of 3 cases thus treated.

100. Pneumococcus or Passive-Congestion Gangrene?—A young man drove a splinter into his thumb and pulled it out with his teeth. The arm became very painful and swollen, but several punctures failed to reveal pus and a Bier constricting band was applied and left on all night. The next morning the fingers were bluish and cold and gangrene rapidly developed, requiring amputation. Pneumococci were found in the lesion and the gangrene may have been their work, or it may have been the result of the artificially induced congestion superposed on the already intensely swollen condition of the parts. In any event, the case warns that when the soft parts are already very much swollen it is wiser to relieve the tension by an incision to regulate the circulation before applying the constricting band.

102. Therapeutic Pneumothorax.—Brauer relates that he has applied Murphy's method of artificially induced pneumothorax in treatment of a girl of 18 with progressive tuberculosis of one lung, the other sound. After each injection of nitrogen the fever abruptly subsided for a long time, an effect not attainable by any other method of treatment known to date. The collapse of the lung caused no disturbances. He has devised an apparatus for injection of the gas. The nitrogen becomes absorbed in time, and it may be found advisable to substitute some other indifferent substance. Experiments in this line are now in progress. The collapsed lung has infectious matter squeezed out of it by the pressure, and the passive congestion aids in its healing. His patient is much improved.

106. Gastric Secretion in Chlorosis.—In 23 cases Arneth found hyperacidity in 15 of the patients. In 8 the improvement in the blood findings under treatment was paralleled by the restoration to normal of the gastric acidity. In the severer cases of chlorosis the findings always indicated extreme hyperacidity. He has never encountered subnormal or deficient acidity in any case of chlorosis. The treatment which proved successful was rest in bed at first, sometimes for several weeks in the severer cases, with iron or arsenic subcutaneously. Iron plus arsenic internally was given in the cases in which the number of red corpuscles was very low. If the spleen was enlarged he accepted this as an indication for quinin. His formula for an effective and unirritating iron pill is 7.5 gm. reduced iron with glycerin and gelatin enough to make 90 pills, as soft as possible. He orders one or two pills at first and then three after each meal.

107. Interruption of Pregnancy in Constitutional Diseases.—Hofmeier relates his experience in 3 cases of chronic nephritis in pregnant women. The threatening symptoms continued notwithstanding that the fetus had died, but rapid and pronounced improvement followed artificial termination of the pregnancy. In one case the nephritis was very severe and some symptoms are still observed. One woman was delivered by Dührssen's technic of anterior hysterotomy. The condition was critical in all the patients when first seen. These cases teach that it is unwise to allow conditions to reach such a serious pass before interfering. In a case of severe cardiac defect in a primipara of 32 with contracted pelvis, uterus bicornis and transverse presentation, at the tenth month of pregnancy, he safely delivered the patient of a living child by Cesarean section according to Porro. He removed the uterus to prevent future pregnancies and also to simplify the puerperium as much as possible. The results were highly satisfactory, as the childbirth had not taxed the heart unduly. The patient now feels perfectly well except for palpitation and dyspnea when she works very hard. Pregnancy in a diabetic woman is extremely rare for various reasons. In a case recently observed, a woman in the seventh month of pregnancy, had been under treatment for confirmed diabetes; the first symptoms were noted not long after the commencement of the pregnancy. She was artificially delivered of a recently dead fetus. The amniotic fluid contained 0.165 per cent. grape sugar (dextrose). The patient's condition grew progressively worse and she succumbed the fourth day in coma. Hofmeier does not ascribe this fatal termination to the delivery, but to the fact that it was postponed until the disease had gained such headway. If she had been delivered when symptoms were first observed the prospects would have been much better. There is little chance of a viable child from a diabetic mother. In respect to myelitis, a possible connection with pregnancy is generally denied, but in a case in his experience the symptoms improved remarkably after the patient with ascending myelitis had been artificially delivered nearly at term. She succumbed four months later to the effects of a gangrenous decubitus. He discusses in conclusion the psychoses of pregnant women, with a case from his own experience in which melancholia and insomnia accompanied a pregnancy in a woman predisposed to mental affections. In consultation with the physicians who had attended the patient in her three previous pregnancies he induced arti-

ficial delivery. The patient recovered her mental balance and passed through other pregnancies later without psychic depression.

110. **Action of Iodin in Experimental Arterial Affections.**—Twenty-three rabbits were treated with adrenalin and 11 with subcutaneous administration of iodin at the same time. The results showed that the necrosis of the arteries which inevitably followed the injections of adrenalin could be prevented by simultaneous injection of iodin.

114. **Mental Strain for Children.**—Czerny thinks that people exaggerate the importance of "school strain." They ascribe to the school what is really the result of the home environment. The mental strain is intense during the years before the child enters the school if it is much with adults. It is constantly asking questions and learns something from each answer, but no one thinks of measuring or shortening the hours of this activity of the child's brain. Adults sometimes answer a child's questions all day long and merely rejoice in its inquiring little mind. In this way the child soon grows out of its childlike naiveté, and signs of neuropathy develop which are falsely ascribed to "school strain" after the child enters school. The most effectual remedy is to allow children to grow up in the companionship of children, and to reduce their association with adults to the minimum. When children play together the demand for toys and change of amusements is much less than for one child alone, and there is also the possibility of many harmless games and of cultivation of the will. Children playing together have red cheeks while the child associating with adults does not get the same exercise and is pale. This pallor is a sign of mental strain. The excitement that reddens a child's cheeks is harmless. A child with a private tutor has to pay stricter attention in one hour than during the four hours of a public school, and he has more unoccupied time. This aids in developing a neuropathic tendency. The meals, the bath, etc., become important events. Symptoms of hysteria frequently develop in such children in connection with some bodily function.

Münchener medizinische Wochenschrift.

115 (LIII, No. 12.) *Die Milch-Leukozyten Probe (leucocyte test for milk). R. Trommsdorff.
116 *Mitteilungen über Spirochaeta pallida (Schaudinn) und Cytorrhyctes (Siegel). J. Schütz.
117 Liquor Drinking Among School Children.—Ueber Verbreitung und Wirkung des Alkoholgenusses bei Volks- und Mittelschülern. R. Hecker.
118 Prophylaxe und Therapie der Appendizitis. H. Welsch.
119 Zur Kasuistik und Therapie der Darm-Rupturen durch stumpfe Gewalt (rupture of intestines by contusion). Federschmidt Five cases.
120 Ueber Prurigo haemorrhagica. H. Vörner.
121 *Suicide with Veronal.—Selbstmord durch Veronal. F. Ehrlich.
122 Improved Child's Bed.—Ein neues Kinderspitalbett. Hutzler (Munich).

115. **The Leucocyte Test of Milk.**—Trommsdorf has confirmed Bergey's statements in regard to the diagnostic value of the presence of leucocytes in milk. Whenever leucocytes were found in the milk in large numbers innumerable streptococci were also present.

116. **Spirochetes and Cytorrhyctes.**—Schütz has been making a comparative study of Schaudinn's *Treponema pallidum* and Siegel's *Cytorrhyctes luis*. He call attention to the way in which both are always found together and close to or inside the red corpuscles. Specimens in which there is only a single red corpuscle in the field are especially significant in this respect. He thinks it is possible that they represent merely different phases in the life cycle of a single microorganism.

121. **Suicide with Veronal.**—Ehrlich relates 2 cases of suicide with veronal. Both patients were men of about 57 and generally healthy, although one had suffered from circular melancholia for 20 years. He took 15 gm. of veronal at one time. The other man took 11 gm. Neither recovered consciousness and both died at the twentieth hour. A greenish-yellow tint of the corpse was striking in the first case. Ehrlich comments on the way in which the report in the papers of a suicide with lysol was followed by an epidemic of suicides with this drug. Lysol has since been withdrawn from open sale and can be obtained now only on a physician's prescription. "This way of exploiting new drugs is utterly opposed to common sense," he says. "When a manufacturing chemist puts a new drug on the market he presents testimonials to prove that it is harmless and it is freely offered for sale until cases of severe intoxication and even death gradually accumulate and establish beyond question the fact that the drug is toxic and dangerous. Then it is withdrawn from open sale and regulations are passed restricting its use to physician's prescribing. Thus it fared with antipyrin, sodium salicylate and other drugs. We who are practicing physicians know that the testimonials sent out with the new drugs are often doctored. In the interests of our fellowmen, to protect them against injury to health and death, we physicians must demand that this way of doing things should be reversed. The sale of all the new drugs should be restricted and they should be dispensed only on physicians' prescriptions. Only when a general verdict of physicians as to their non-toxic and harmless properties has been attained should they be allowed to be sold at retail without restrictions. In particular," he adds in conclusion, "veronal should be withdrawn at once from the general market, for veronal in large doses is an absolutely certain fatal poison." In one of the cases reported the patient had bought 30 gm. of veronal, obtaining 15 gm. at one drug store, 10 gm. at another and 5 gm. at a third. The symptoms were cyanosis, unconsciousness, superficial respiration, with occasional complete arrest of the respiration for a few minutes, and retching from time to time. The tip of the nose and the hands and feet were cold, the pupils contracted, the pulse about 90, sometimes imperceptible. The clinical picture simulated that of morphin poisoning. The stomach was rinsed at once and atropin was injected (0.0005 gm. every half-hour, six times). Chemical analysis showed 0.36 gm. veronal in 100 c.c. of urine.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

OPERATIVE TREATMENT OF PROLAPSE AND RETROVERSION OF THE UTERUS. By J. Inglis Parsons, M.D., M.R.C.P., M.R.C.S., Physician to the Chelsea Hospital for Women, Late Surgeon Royal Maternity Charity, Fellow of Royal Medical and Chirurgical Society, Obstetrical Society of London, British Gynecological Society. Hon. Fellow American Electro-Therapeutical Society, etc. Cloth. Pp. 90. Price 3s. 6d. net. London: John Bale, Sons & Danielsson, Ltd., 1906.

OPERATIVE OTOLOGY. Surgical Pathology and Treatment of Diseases of the Ear. By C. J. Blake, M.D., Professor of Otology in Harvard University, and H. O. Reik, M.D., Associate in Ophthalmology and Otology, Johns Hopkins University. Cloth. Pp. 359. Price, $3.00. New York: D. Appleton & Company, 1906.

HUMAN SEXUALITY, a Medico-Literary Treatise on the Laws, Anomalies, and Relations of Sex, with Especial Reference to Contrary Sexual Desire. By J. R. Parke, Sc.B., Ph.G., M.D. (Late Acting Assistant Surgeon, U. S. Army). Cloth. Pp. 476. Philadelphia: Professional Publishing Company, 1906.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION at the Fifty-third Annual Meeting, held at Atlantic City, N. J., September, 1905. Also the Constitution, By-Laws and Roll of Members. Cloth. Pp. 957. Baltimore: Published by the American Pharmaceutical Association, 1906.

HEALTH-CARE OF THE BABY. A Hand-book for Mothers and Nurses. By L. Fischer, M.D., Author of "Infant Feeding in Health and Disease"; "A Text-book on Diseases of Infancy and Childhood," etc. Cloth. Pp. 144. Price, 75c net. New York: Funk & Wagnalls Company, 1906.

PROCEEDINGS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION at the Sixty-First Annual Meeting, held in San Antonio, Texas, April 18-21, 1905. Paper. Pp. 384. Published by American Medico-Psychological Association, 1905.

NOMENCLATURE ANATOMIQUE En 4 Langues. [Latin (nomenclature de Bâle), French, English, Esperanto.] By Dr. Paul Rodet. Paper. Pp. 76. Price, 1 franc 50 (30 cents). Paris: Masson Et Cie, Editeurs, 1906.

I PRINCIPI FONDAMENTALI DELLA ANTROPOLOGIA CRIMINALE Guida Per I Giudizi Medico-Forensi Nelle Questioni Di Imputabilita. By G. Antonini. Cloth. Pp. 64. Price, L. 2. Milan, Italy: Ulrico Hoepli, 1906.

PRONTUARIO DI POSOLOGIA Dei Rimedi Più Usati Nella Terapia Infantile. By A. Conelli. Cloth. Pp. 64. Price, L. 2. Milan, Italy: Ulrico Hoepli, 1906.

PNEUMONITE CRUPALE con speciale Riguardo alla sua cura. By A. Serafini. Cloth. Pp. 64. Price, L. 2.50. Milan, Italy: Ulrico Hoepli 1906.

THE PHANTOM OF THE POLES. By William Reed. Cloth. Pp. 283. Price, $1.50. New York: Walter S. Rockey Company, 1906.